



Missouri Department of Natural Resources  
Air Pollution Control Program  
2011 Monitoring Network Plan

## TABLE OF CONTENTS

<b>SUMMARY OF PROPOSED CHANGES .....</b>	<b>3</b>
<b>INTRODUCTION.....</b>	<b>4</b>
<b>CURRENT NETWORK .....</b>	<b>6</b>
<b>PROPOSED CHANGES TO NETWORK.....</b>	<b>8</b>
1. <b>Lead Monitoring Network.....</b>	<b>8</b>
2. <b>Sulfur Dioxide Monitoring Network.....</b>	<b>15</b>
3. <b>NATTS and Special Purpose Monitoring.....</b>	<b>21</b>
4. <b>PM<sub>2.5</sub> Monitoring Network.....</b>	<b>22</b>
5. <b>Ozone Monitoring Network.....</b>	<b>25</b>
6. <b>Rural National Core.....</b>	<b>26</b>
7. <b>PM<sub>10</sub> Monitoring Network.....</b>	<b>26</b>
8. <b>Monitor Discontinuances.....</b>	<b>26</b>
<b>NETWORK DESCRIPTION/COMPONENTS.....</b>	<b>30</b>
<b>APPENDIX 1: MISSOURI MONITORING NETWORK DESCRIPTION.....</b>	<b>34</b>
<b>APPENDIX 2: MISSOURI LEAD SOURCE MODELING RESULTS AND                   PROTOCOL</b>	

## **SUMMARY OF PROPOSED CHANGES**

Missouri's 2011 Monitoring Network Plan proposes to add:

- Two new lead sites:
  - The Blair St., St. Louis (National Core) site.
  - A special purpose monitor at the Exide Facility in Forest City.
- One new sulfur dioxide site at Buick Northeast in Boss.

The plan also proposes relocating the Bixby West, Iron County and Herculaneum Main St. monitoring sites.

Several modifications to the existing network are proposed, including permanent monitor discontinuances and modifications to the  $PM_{10}$ ,  $PM_{2.5}$ , air toxics, lead filter analytical method and special purpose monitor network.

More details on these proposed changes are included throughout this Monitoring Network Plan.

## INTRODUCTION

The Missouri Department of Natural Resources operates an extensive network of ambient air monitors to comply with the Clean Air Act and its amendments. The Ambient Air Quality Monitoring Network for the State of Missouri consists of State and Local Air Monitoring Stations (SLAMS), Special Purpose Monitoring Stations (SPMS) monitoring and the National Core (NCore) monitoring consistent with requirements in federal regulation 40 CFR 58.10.

40 CFR 58.10 requires states submit to EPA an annual monitoring network plan including any proposed network changes. With regard to state and local air monitoring station changes, approval by the Environmental Protection Agency Regional Administrator is required.

The plan must contain the following information for each monitoring station in the network:

1. The Air Quality System site identification number for existing stations.
2. The location, including the street address and geographical coordinates, for each monitoring station.
3. The sampling and analysis method used for each measured parameter.
4. The operating schedule for each monitor.
5. Any proposal to remove or move a monitoring station within a period of eighteen months following the plan submittal.
6. The monitoring objective and spatial scale of representativeness for each monitor.
7. The identification of any sites that are or are not suitable for comparison against the annual PM<sub>2.5</sub> National Ambient Air Quality Standard (NAAQS).
8. The metropolitan statistical area, core-based statistical area, combined statistical area or other area represented by the monitor.

### Network Design

Federal regulations (CFR 58) establish the design criteria for the ambient air monitoring network. The network is designed to meet three general objectives:

- Provide air pollution data to the public in a timely manner.
- Support compliance with ambient air quality standards and emissions strategy development.
- Support air pollution research studies.

Specific objectives for the monitoring sites are to determine the highest pollution concentrations in an area, to measure typical concentrations in areas of high population density, to determine the impact of significant sources or source categories, to determine general background levels and to determine the extent of regional pollutant transport among populated areas. Minimum site requirements are provided for ozone and particulate matter based on metropolitan statistical area population. Nitrogen dioxide and potentially carbon monoxide monitoring requirements are to be fulfilled in the plan to be submitted by July 1, 2012. These requirements include roadside and area sites for large metropolitan areas. Current lead monitoring requirements for lead sources emitting 1 ton per year, or tpy, are being met and this plan will address any changes to the lead

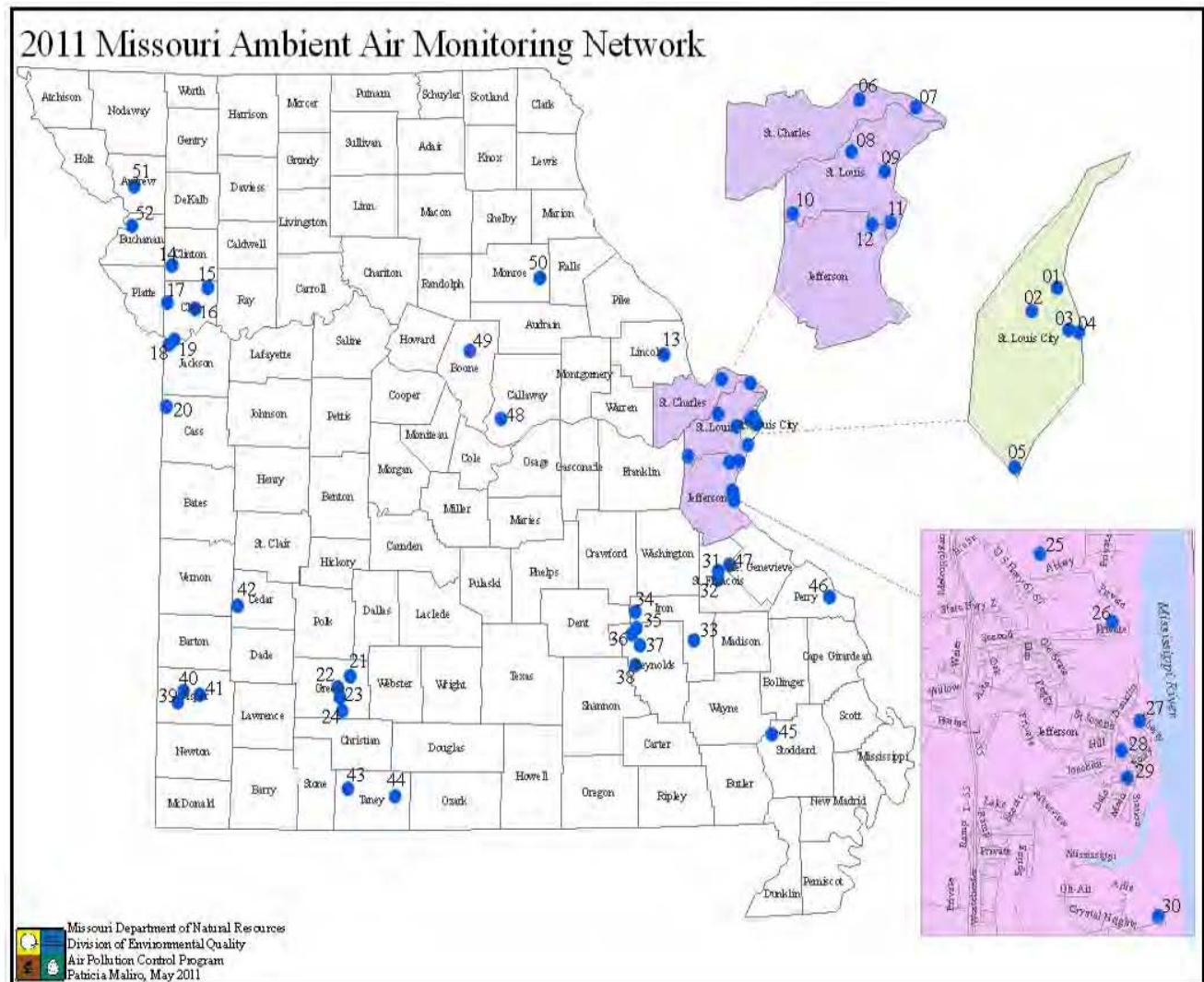
monitoring network and an evaluation of lead sources with a 2008 National Emissions Inventory of 0.25 to 0.50 tpy.

Federal regulations also establish the specific requirements for monitor/probe siting to ensure the ambient data represents the stated objectives and spatial scale. The requirements are pollutant/scale specific and involve horizontal/vertical placement. Additional details concerning the sites may be found in Appendix 1.

There is only one PM<sub>2.5</sub> sampler in Missouri that is not applicable for comparison to the annual NAAQS - Branch Street. It is a middle-scale site focused on a group of sources in the industrial riverfront area and is not neighborhood scale. The identification of any sites that are or are not suitable for comparison against the annual PM<sub>2.5</sub> National Ambient Air Quality Standard is required of 40 CFR Part 58.10 (7).

## CURRENT NETWORK

The current network is shown below in the map and table.



## Legend

### St. Louis Area

Site# Site Name	Parameter Monitored
01 Hall Street	PM <sub>10</sub>
02 Margareta	PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>2</sub>
03 Blair Street	PM <sub>10</sub> , PM <sub>10-2.5</sub> , PM <sub>2.5</sub> , PM <sub>2.5</sub> (Spec), PMCoarse, O <sub>3</sub> , SO <sub>2</sub> , NO <sub>2</sub> , CO, BC, Carbonyls, Hexa Chromium, PAHs, VOCs, WS, WD, SR, BP, RH, Pb
04 Branch Street	PM <sub>10</sub> , PM <sub>10-2.5</sub> , PM <sub>2.5</sub> , PMCoarse, WS, WD
05 South Broadway	PM <sub>10</sub> , PM <sub>10-2.5</sub> , PM <sub>2.5</sub> , PMCoarse
06 Orchard Farm	O <sub>3</sub>
07 West Alton	O <sub>3</sub> , WS, WD, OT, SR
08 Maryland Heights	O <sub>3</sub> , WS, WD, OT
09 Ladue	PM <sub>2.5</sub> , WS, WD, OT
10 Pacific	O <sub>3</sub> , WS, WD, OT
11 Oakville	PM <sub>10</sub> , WS, WD
12 Arnold West	PM <sub>10</sub> , PM <sub>10-2.5</sub> , PM <sub>2.5</sub> (Spec), PMCoarse, O <sub>3</sub> , WS, WD, OT
13 Foley	O <sub>3</sub> , WS, WD, OT

### Kansas City Area

Site# Site Name	Parameter Monitored
14 Trimble	O <sub>3</sub> , WS, WD
15 Watkins Mill	O <sub>3</sub>
16 Liberty	PM <sub>10</sub> , PM <sub>10-2.5</sub> , PM <sub>2.5</sub> (Spec), PMCoarse, O <sub>3</sub> , WS, WD, OT, SR
17 Rocky Creek	O <sub>3</sub> , WS, WD
18 Troost	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , OT
19 Front Street	PM <sub>10</sub>
20 Richards Gebaur-South	PM <sub>10</sub> , PM <sub>2.5</sub> , PMCoarse, O <sub>3</sub> , WS, WD

### Springfield Area

Site# Site Name	Parameter Monitored
21 Fellows Lake	O <sub>3</sub> , WS, WD
22 Hillcrest H. Sch.	O <sub>3</sub>
23 Missouri State University	PM <sub>10</sub> , PM <sub>10-2.5</sub> , PM <sub>2.5</sub> , PMCoarse
24 South Charleston	SO <sub>2</sub>

### Herculaneum Area

Site# Site Name	Parameter Monitored
25 Pevely North	Pb
26 Pevely	Pb
27 Herculaneum, Sherman	Pb
28 Herculaneum, Dunklin H. Sch.	Pb
29 Herculaneum, Mott Street	SO <sub>2</sub> , Pb, WS, WD
30 Ursuline North	Pb

### Old Lead Belt Area

Site# Site Name	Parameter Monitor
31 Park Hills	Pb
32 St. Joe State Park	Pb

### New Lead Belt Area

Site# Site Name	Parameter Monitored
33 Glover	Pb
34 Buick NE	Pb, SO <sub>2</sub> , WS, WD
35 Oates	Pb
36 Bill's Creek	Pb
37 Fletcher	Pb
38 Corridon	Pb

### Tri-State Mining Area

Site# Site Name	Parameter Monitored
39 Webb City	Pb

### Outstate Area

Site# Site Name	Parameter Monitored
40 Alba	O <sub>3</sub>
41 Carthage	PM <sub>10</sub> , WS, WD
42 El Dorado Springs	PM <sub>10</sub> , PM <sub>2.5</sub> , PMCoarse, O <sub>3</sub> , WS, WD
43 Branson	O <sub>3</sub> , WS, WD
44 Hercules Glades	IMPROVE
45 Mingo	IMPROVE
46 Farrar	O <sub>3</sub> , WS, WD
47 Bonne Terre	PM <sub>2.5</sub> (Spec), O <sub>3</sub>

### Outstate Area (Cont')

Site# Site Name	Parameter Monitored
48 New Bloomfield	O <sub>3</sub> , WS, WD
49 Finger Lakes	O <sub>3</sub>
50 Mark Twain State Park	PM <sub>10</sub> , O <sub>3</sub> , WS, WD
51 Savannah	O <sub>3</sub> , WS, WD
52 St. Joseph Pump Station	PM <sub>10</sub> , PM <sub>10-2.5</sub> , PMCoarse, OT

### Acronyms

PM <sub>10</sub>	Particulate Matter (Diameter size ≤ 10 micrometer)
PM <sub>10-2.5</sub>	PM <sub>10</sub> Local Condition
PM <sub>2.5</sub>	Particulate Matter (Diameter size ≤ 2.5 micrometer)
PMCoarse	Particulate Matter (Diameter size between 2.5 and 10 micrometer)
Spec	Speciation
O <sub>3</sub>	Ozone
SO <sub>2</sub>	Sulfur Dioxide
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Reactive Oxides of Nitrogen
CO	Carbon Monoxide
Pb	Lead
BC	Black Carbon
WS	Resultant Wind Speed
WD	Resultant Wind Direction
OT	Outside Temperature
BP	Barometer Pressure
RH	Relative Humidity
SR	Solar Radiation
IMPROVE	Interagency Monitoring of PROtected Visual Environment (Regional Haze)

## PROPOSED CHANGES TO THE NETWORK

### 1. Lead Monitoring Network

Changes to airborne lead monitoring requirements were published in the Federal Register: December 27, 2010 (Volume 75, Number 247). These new rules require a plan for monitoring lead sources emitting 0.50 tons per year or more, revised from the previous requirement for monitoring sources emitting one ton per year or more. Airports are specifically exempted from these requirements except for a special study being conducted at specific airports, none of which are in Missouri. Newly required lead source-oriented monitors are to be included in the July 1, 2011 annual network plan (this document) and begin operation by December 29, 2011 (i.e., the first scheduled sampling day one year after publication of the rule change).

The rule change also requires lead monitoring at NCore sites by the same date along with the other required parameters. Federal regulation, 40 CFR 58, calls for NCore sites to measure PM<sub>2.5</sub> mass, speciated PM<sub>2.5</sub>, PM<sub>10-2.5</sub> mass, speciated PM<sub>10-2.5</sub>, ozone, sulfur dioxide, carbon monoxide, nitrogen oxide/NO<sub>y</sub>, wind speed, wind direction, relative humidity, ambient temperature and lead (at this time there is no method to sample speciated PM<sub>10-2.5</sub>). We will meet these requirements at the Blair Street site in St. Louis, including utilizing a total suspended particulate matter Federal Equivalent Method sampler for lead. The rule change also eliminated the requirement for urban area lead monitoring at sites other than NCore sites, so lead monitoring in the Kansas City urban area is no longer required.

#### 1.1 Review of Half-Ton Lead Sources

Half-ton lead sources are identified in the 2008 National Emissions Inventory. This inventory is comprised of actual emissions data reported to the state of Missouri through annual Emissions Inventory Questionnaires. Emissions data is collected, quality assured and submitted to EPA for inclusion in the national inventory. A review of the 2008 National Emissions Inventory identified five sources, in addition to the existing lead processing facilities discussed in the 2009 Missouri Lead Monitoring Network plan that are currently being monitored. These additional facilities are reporting emissions of more than 0.50 tpy of lead, as listed in the following table. All these sources are electric generating stations that combust coal as their primary fuel.

Source	Lead Emissions (tons per year)
Ameren UE Rush Island Plant	1.067
Associated Electric Cooperative New Madrid Plant	0.927
Ameren UE Meramec Plant	0.744
Kansas City Power and Light Iatan Generating Station	0.528
Ameren UE Labadie Plant	2.093*

\*Corrections to be posted to the National Emissions Inventory in June 2011.

EPA staff has stated on recent conference calls that, in the process of developing recent National Emissions Standards for hazardous air pollutants for electric generating units, it has been learned that published emission factors are high for airborne lead emissions from coal combustion in electric generating units. Guidance on estimating lead emissions from such facilities is supposed

be issued soon but has not been issued as of this writing, so revision (downward) of the emission estimates tabulated above and based on that guidance is not yet possible.

Therefore, air quality simulation modeling was used to estimate the maximum potential ground level airborne lead concentrations from these facilities using the emission rates tabulated above. The model used was AERMOD, EPA's preferred non-reactive dispersion model. Post-processing was done using LEADPOST, whose output is limited to two significant figures (i.e., hundredths of micrograms per cubic meter [ $\mu\text{g}/\text{m}^3$ ] which is sufficient to resolve concentrations at or below 50% of the NAAQS). The modeling protocol is attached to this plan as Appendix 2.

The result of this modeling is the maximum 3-month average lead concentration at each of these facilities is  $0.00 \mu\text{g}/\text{m}^3$ , which is below 50% of the NAAQS. The modeled maximum monthly average lead concentration for any one of the facilities did not exceed  $0.004 \mu\text{g}/\text{m}^3$ , which is only 3% of the NAAQS. Therefore, the department requests a waiver of the lead ambient air monitoring requirements for these facilities.

One non-electric generating unit source was identified in the 2008 National Emissions Inventory (version 1) as reporting emissions over 0.50 tpy. The Connector Castings emissions report of 0.88 tpy of lead was examined and determined to be in error due to misinterpretation of the Material Safety Data Sheets that did not apply controls. The corrected calculation, including controls, shows their emissions were 0.26 tpy in 2008, and that data has been corrected in the 2008 National Emissions Inventory version 1.5.

A special case examination of lead emissions for Exide Technologies Cannon Hollow Plant arose due to docket publications included for the revisions to the secondary lead smelter MACT. The current MACT requires biannual stack tests that are witnessed and approved by Missouri Air Pollution Control Program staff, and 2008 National Emissions Inventory lead emissions calculated from these stack tests are 0.060 tpy. EPA's docket publication proposes to significantly change the method of determining the fugitive emissions from secondary lead smelters and suggests that Exide's 2008 fugitive emissions place them over the 0.50 tpy monitoring threshold. Exide's facility design minimizes fugitive emissions through enclosure and negative pressure ventilation, and EPA's proposed fugitive emission calculation does not adequately reflect these conditions. This method also has no calibration to monitored data. Fortunately, historical monitoring data is available from near the Exide facility. During the monitoring period, the verified and validated data was consistently at non-detect levels, and Exide had comparable production rates and facility operations during that period and 2008. Although this monitor measured 24 hour samples, in our engineering judgment, the new standards would not be reached, all things being equal. The proposed EPA method for calculating fugitive emissions lacks both operating characteristic and monitoring data consideration.

For these reasons, the reported lead emissions of 0.06 tpy from Exide are preferable to EPA's estimated values. If the reported data is overridden by the EPA at the Exide site, we would first request a review of the historical monitoring data with EPA staff before considering a request for an exemption to the monitoring. Despite reservations about Exide meeting the 0.50 tpy emission threshold, a special purpose monitor, or SPM, is proposed for the area to evaluate EPA's modeling results of the facility and demonstrate the area is in compliance with the lead NAAQS.

After reviewing sources reporting lead emissions between 0.25 and 0.50 tpy, there is no justification to increase the reported emissions above 0.50 tpy which would subject them to the monitoring network rules.

### 1.3 Relocation of the Bixby West Site

The Bixby West Site began operation in February 2010 to monitor the impact of the Buick secondary lead smelter. In mid-2010, the Doe Run Company acquired the property where that monitor was located and relocation of that monitor was necessary. A new site, called Buick Northeast, was located by department staff during August 2010 and visited by EPA on September 8, 2010. EPA approved the Buick Northeast Site by email correspondence on September 10, 2010. In this correspondence, EPA Region 7 staff proposed to formally approve the Buick Northeast Site as part of the 2011 Monitoring Network Plan since the change occurred after the approval of the 2010 Monitoring Network Plan.

The last sample at Bixby West was collected on September 11, 2010. The first sample at Buick Northeast was collected on November 22, 2010. The following aerial photograph (Figure 1.3) shows the locations of the Buick smelter and the two monitoring sites. The 3-month rolling average lead concentrations for the Bixby West and Buick Northeast site are listed in the following table.

### **3-Month Average Lead Concentrations, ug/m<sup>3</sup>**

Highlights indicate 3-month averages greater than the 0.15 ug/m<sup>3</sup> standard

	<b>Bixby West*</b>	<b>Buick Northeast</b>
Feb-Apr 2010	0.542	
Mar-May 2010	0.557	
Apr-Jun 2010	0.510	
May-Jul 2010	0.238	
Jun-Aug 2010	0.273	
Jul-Sep 2010	0.198	
Aug-Oct 2010		
Sep-Nov 2010		
Oct-Dec 2010		
Nov 2010-Jan 2011		0.209
Dec 2010-Feb 2011		0.291
Jan-Mar 2011		0.299

\*Site discontinued in September; replaced by Buick Northeast site in November.

Figure 1.3  
Buick Facility and Ambient Air Monitoring Sites



#### 1.4 Relocation of the Herculaneum Main St. Site

On April 6, 2011 the department received a letter from the City of Herculaneum requesting the state move its Herculaneum Main St. monitoring site from city property to make room for widening of the entrance to City Hall. Department staff contacted City of Herculaneum staff to

discuss other possible city property locations on which the monitor could be placed, but no viable location could be negotiated. On April 27, 2011, Air Program, EPA and Doe Run Company staff met to discuss using the former Doe Run Mott Street Site as a candidate for relocating the Herculaneum Main Street lead and sulfur dioxide monitors. All parties agreed this would be the best location since the site had historical lead monitoring and the site is adjacent to residential property. The Mott Street Site is located about 80 meters (263 feet) to the west of the current Herculaneum Main Street Site. The Herculaneum Main Street monitoring site will be removed from the current location to the Mott St. Site. Monitoring at the Mott St. Site is expected to begin in June 2011. The following aerial photograph (Figure 1.4) shows the locations of the Main Street and Mott Street sites.

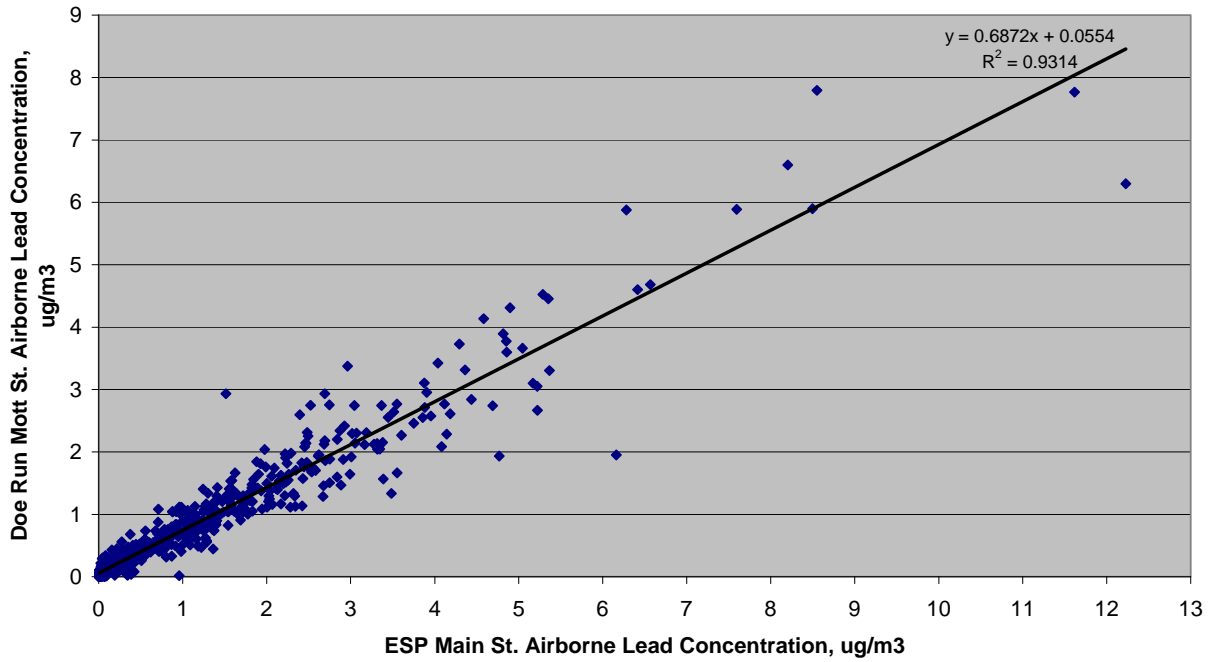
Doe Run Company conducted lead monitoring at the Mott Street Site from April 2008 through October 2010. Lead concentrations measurements at that site were slightly lower but very well correlated with concentrations measured at the Main Street Site, as shown in the following x-y plot. The following bar graph shows average lead concentrations measured by the state and Doe Run Company at Main Street, by Doe Run at Mott Street, and by both organizations at Dunklin High School, all for the time period of April 2008 through October 2010. This graph also shows that the average Mott Street concentration is lower than that measured at Main Street, but closer to the Main Street concentration than is the concentration at the somewhat more distant Dunklin High School Site.

Figure 1.4  
Herculaneum Main St. and Mott St. Sites

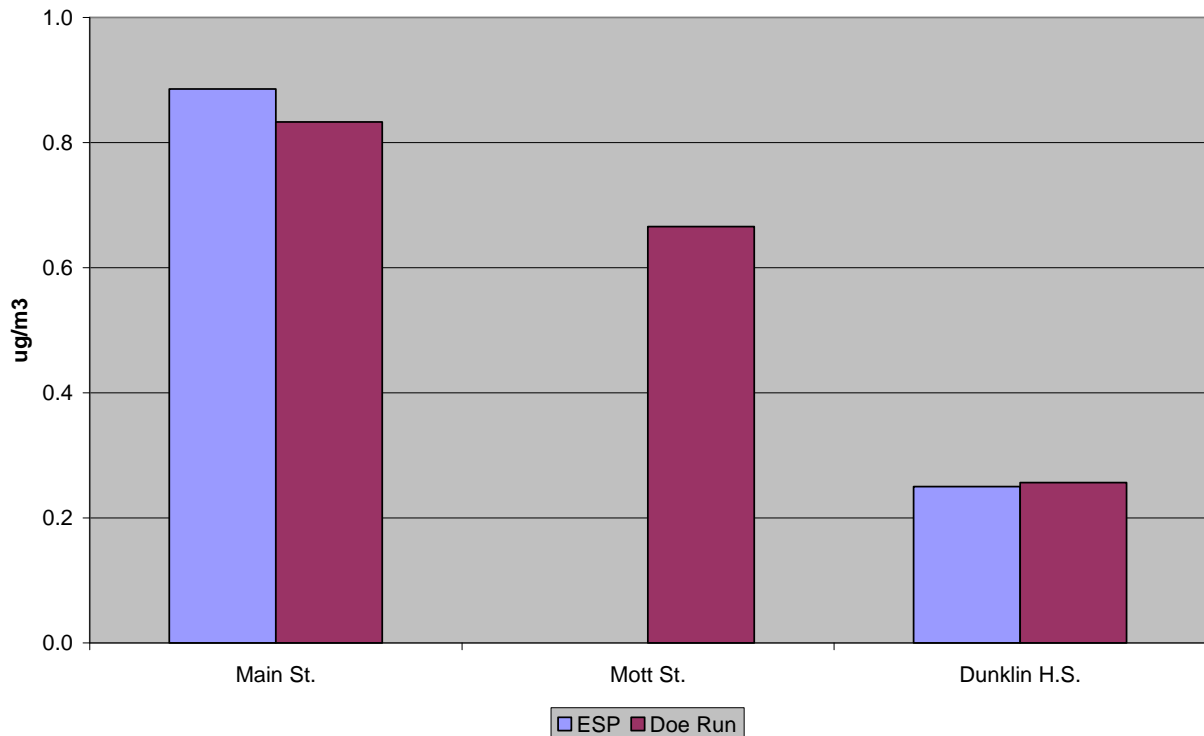


1. Former Herculaneum Main St. (Herc. Main) site
2. Mott St. Site (approx. 80 meters from Herc. Main)  
(Note: several nearby buildings have been demolished since the date of the satellite image)

**Correlation of Doe Run Mott St. and ESP Main St. Airborne Lead Concentrations,  
24-hour Measurements, April 2008-October 2010**



**Airborne Lead Concentration Average, April 2008-October 2010**



### 1.5 Transition From The Lead Analytical Analysis Method 085 to Method 192.

The state of Missouri will transition from the Current Federal Equivalent Method (Method 085) for lead analysis to the recently approved US EPA Region 9 method, cited below. US EPA Region 9 method will improve the detection limits of the lead filter analysis and be consistent with the ICP/MS method EPA intends to use for the Performance Evaluation Program.

#### ***Inductively Coupled Plasma - Mass Spectrometry (US EPA/Region 9)***

##### **Manual Equivalent Method: EQL-0710-192**

,,,Heated Nitric Acid Hot Block Digestion and ICP/MS Analysis for Lead on total suspended particulate High-Volume Filters."" In this method, total suspended particulate matter is collected on glass fiber filters according to 40 CFR Appendix B to part 50, EPA Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-Volume Method), extracted with a solution of nitric acid, heated on a hot block to 95°C for one hour, and brought to a final volume of 50 mL. The lead content of the sample extract is analyzed by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) based on EPA Method 200.8 and SW-846 Method 6020A.

***Federal Register: Vol.75, page 45627, 08/03/10***

## **2. Sulfur Dioxide Monitoring Network**

On June 2, 2010, the US EPA revised the primary sulfur dioxide standard by establishing a 1-hour standard at the level of 75 parts per billion, or ppb. The EPA revoked the two previous primary standards of 140 ppb evaluated over 24-hrs and 30 ppb evaluated over an entire year.

As part of the rulemaking, EPA revised the monitoring regulations to require a minimum number of sulfur dioxide monitors in core based statistical areas based on a population weighted emissions index. Additional sulfur dioxide monitoring may be required by the EPA Regional Administrator under certain circumstances.

### **2.1.0 Population Weighted Emissions Index Required Sulfur Dioxide Monitoring**

Federal regulation, Part 58, Network, Design Criteria for Ambient Air Quality Monitoring section 4.4.2 cites the requirements for the population weighted emissions index monitoring as follows: “The population weighted emissions index shall be calculated by States for each core based statistical area they contain or share with another State or States for use in the implementation of or adjustment to the sulfur dioxide monitoring network. The population weighted emissions index shall be calculated by multiplying the population of each core-based statistical area, using the most current census data or estimates, and the total amount of sulfur dioxide in tons per year emitted within the core-based statistical area area, using an aggregate of the most recent county level emissions data available in the National Emissions Inventory for each county in each core-based statistical area. The resulting product shall be divided by one million, providing a population weighted emissions index value, the units of which are million persons-tons per year.”

After review of the 2008 National Emissions Inventory for total sulfur dioxide emissions and the 2009 estimated population data, minimum sulfur dioxide monitoring is required in two Missouri core-based statistical areas, Kansas City and St. Louis. The Kansas City and St. Louis core-based statistical areas are shared with the states of Kansas and Illinois respectively. The following table identifies several of the larger core-based statistical areas, population weighted emissions index and minimum number of required sulfur dioxide monitors.

**PWEI Results for Missouri Metropolitan Statistical Areas**

calculated using 2009 estimated population and 2008 NEI SO<sub>2</sub> emissions

<b>Metropolitan Statistical Area</b>	<b>PWEI</b>	<b>No. of Monitors Required</b>
St. Louis	681,418	2
Kansas City	188,899	2
Springfield	4,759	0
Joplin	2,147	0
Columbia	1,728	0
Jefferson City	834	0
St. Joseph	749	0

---

PWEI  $\geq$  1,000,000: 3 monitors

1,000,000 > PWEI  $\geq$  100,000: 2 monitors

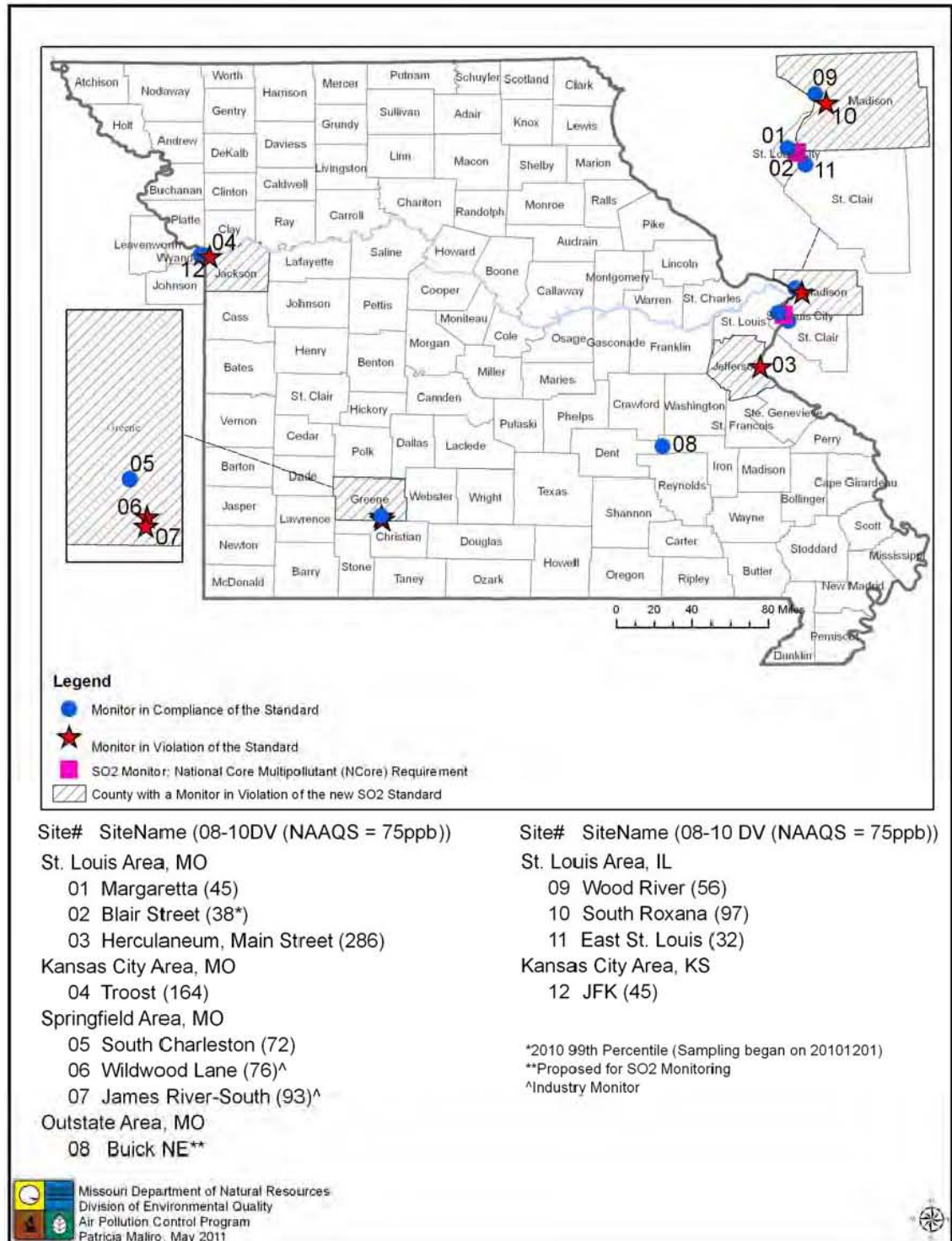
100,000 > PWEI  $\geq$  5,000: 1 monitor

The minimum monitoring requirements in the St. Louis core-based statistical area are satisfied at the Margaretta (SLAMS) and Blair St. (NCore) air monitoring sites in Missouri. In addition to the Missouri sulfur dioxide monitoring sites, Illinois operates three sulfur dioxide monitoring sites at South Roxana, Wood River and East St. Louis.

The minimum monitoring requirements in the Kansas City core-based statistical area are satisfied at the JFK site (NCore) in the State of Kansas and the Troost monitoring site (SLAMS) in the state of Missouri.

The Troost monitoring site is currently in violation of the 1-hour sulfur dioxide standard. Continued sulfur dioxide monitoring is required in Greene and Jefferson counties since existing monitors in those counties currently violate the 1-hour sulfur dioxide NAAQS.

## Missouri Statewide and the Surrounding SO<sub>2</sub> Monitoring Network, 2011



## 2.2.0 Additional SO<sub>2</sub> Monitoring

State and local air monitoring agencies and the EPA regional administrator are to work together to design and/or maintain the most appropriate sulfur dioxide network to provide sufficient data to meet monitoring objectives. In addition to the minimum sulfur dioxide monitoring required by the population weighted emissions index, there is one facility for which ambient sulfur dioxide monitoring is proposed. Based on relatively recent ambient air monitoring conducted as part of a Prevention of Significant Deterioration pre-construction monitoring project at the Buick Recycling facility there is concern that the area may be at risk of not meeting the sulfur dioxide NAAQS. Since Prevention of Significant Deterioration pre-construction monitoring is normally conducted by the facility over a period of one year and the data is reported to the permit granting authority rather than the EPA Air Quality System, the data does not meet the criteria necessary to be used to designate the area as non-attainment. A summary of the data collected for this Prevention of Significant Deterioration project is listed below.

Buick SO <sub>2</sub> Summary		Concentrations in ppm					
		Days	1st high	2nd high	3rd high	4th high	99th %ile
South	2005	90	0.110	0.067	0.067	0.063	0.110
	2006	352	0.132	0.115	0.112	0.102	0.102
	2007	176	0.127	0.066	0.064	0.061	0.066
	average						0.093
North	2006	208	0.172	0.132	0.132	0.117	0.132
	2007	176	0.143	0.117	0.109	0.082	0.117
	average						0.125

The Doe Run Buick recycling facility is a unique source to the extent that it is located in an area of relatively complex terrain which is not as conducive to modeling. The facility also has a production process that may not necessarily yield consistent sulfur dioxide emissions which could contribute to the likelihood of higher ground level sulfur dioxide concentrations. The state of Missouri currently operates a lead monitoring site (Buick North East) which began sampling on November 22, 2010 and is located north east of the facility which appears to be an appropriate location to monitor for sulfur dioxide concentrations from the facility since the highest concentrations during the pre-construction sulfur dioxide monitoring were generally north of the facility.

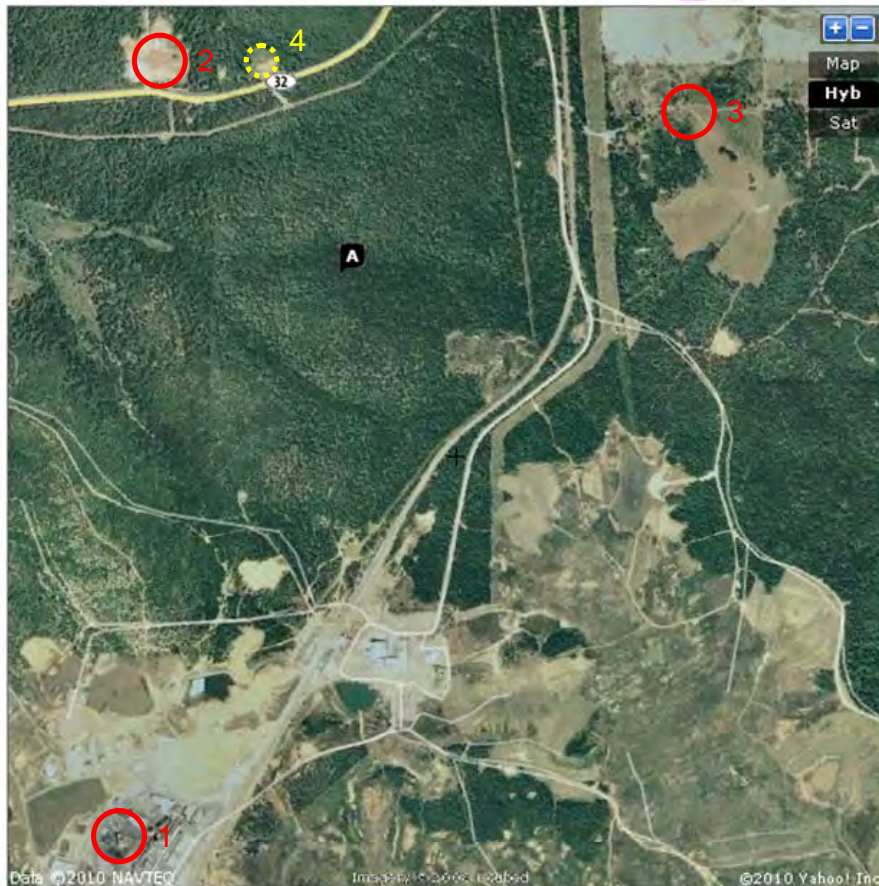
Since the new sulfur dioxide NAAQS suggests using a combined monitoring and modeling approach in certain situations to demonstrate NAAQS compliance, the monitoring site need not necessarily be focused solely on locations of expected maximum concentrations. The future modeling results of this facility, based on the anticipated EPA refined dispersion modeling guidance, will be used with this sulfur dioxide monitoring data to understand the impact this facility has on ambient air quality in this area. The sulfur dioxide monitor will be designated as a middle scale, source oriented, special purpose monitor, since it is not needed to satisfy the minimum sulfur dioxide monitoring requirements of the population weighted emissions index .

The map below (Figure 2.2.0) shows the site locations relative to the Buick Smelter. Over the last two complete three month rolling average periods, the Buick Northeast lead monitor has

measured ambient air lead three month rolling average concentrations which exceed the lead NAAQS of  $0.15 \mu\text{g}/\text{m}^3$ . On days where lead concentrations are higher the winds are generally from the southwest.

We intend to install this sulfur dioxide monitor in the fall of 2011.

Figure 2.2.0



1. Buick Smelter
2. Former Bixby West Site (approx. 1.4 miles from smelter)
3. Buick Northeast Site (approx. 1.6 miles from smelter)
4. Former North Station (preconstruction  $\text{SO}_2$  monitoring site)

### 2.3.0 Relocated Sulfur Dioxide Monitoring

On April 6, 2011 the department received a letter from the City of Herculaneum requesting the state move its Herculaneum Main St. monitoring site from city property to make room for widening of the entrance to City Hall. Department staff contacted the City of Herculaneum staff to discuss other possible nearby city property locations on which the monitor could be placed, but no viable location could be negotiated. On April 27, 2011, Air Program, EPA and Doe Run Company staff met to discuss using the former Mott St. Site as a candidate for relocating the Herculaneum Main St. Lead and sulfur dioxide monitoring site. All parties agreed this would be the best location since the site had historical lead monitoring data and the site is adjacent to residential property. The Mott St. Site is located about 80 meters (263 feet) to the west of the current Herculaneum Main St. Site. The Herculaneum Main St. monitoring site will be removed from the current location to the Mott St. Site. Since the Herculaneum Main St. sulfur dioxide monitor is classified as a middle scale monitor and is currently in violation of the 75 ppb sulfur dioxide federal standard, it is technically desirable to move the site the minimum distance possible from its current location. We anticipate the Mott St. Site will be operation by June 2011. Another sulfur dioxide site is being considered for the area to monitor for the maximum ground level sulfur dioxide concentrations due to the smelter's stack emissions. Additional time is needed to determine the most appropriate location and formally propose the site to EPA for approval.



1. Former Herculaneum Main St. (Herc. Main) site
2. Mott St. Site (approx. 80 meters from Herc. Main)  
(Note: several nearby buildings have been demolished since the date of the satellite image)

### **3. National Air Toxics Trends Stations and Special Purpose Monitoring.**

#### **3.1 National Air Toxics Trends Stations Monitoring:**

EPA Office of Air Quality Planning and Standards staff has indicated they intend to eventually request agencies convert from the PM<sub>10</sub> High Volume method for PM<sub>10</sub> to the PM<sub>10</sub> low volume method for the National Air Toxics Trends Stations, or NATTS, metals analysis. Department staff agree this change is desirable for several technical and operational advantages and intend to switch to the PM<sub>10</sub> low volume sampling method effective July 1, 2011. In addition the regular NATTS monitoring at Blair St., the department and EPA staff are negotiating whether additional NATTS grant funds could be utilized to support collocating a near real time PM<sub>10</sub> Metals Monitor (Xact at the NATTS site to increase understanding of the temporal variation of metals in the ambient air (particularly arsenic and lead) routinely measured by the time integrated 24-hr filter based PM<sub>10</sub> sampling at this site.

#### **3.2 OPSIS**

The OPSIS Ultraviolet Differential Optical Absorption Spectrometer (UV-DOAS) has been operated at the Mount St. Station in St. Louis as a special purpose monitor. The OPSIS provides hourly formaldehyde, benzene, toluene and mercury concentration data. Originally these data were compared to the 24-hour time-integrated data from the Blair Street Station provide information about the temporal and spatial variation between the two sites for these pollutants. Since other multi-pollutants, in particular, particulate matter, elemental and organic carbon are not monitored at Mount St., the OPSIS data do not appear to be as valuable in satisfying the multi-pollutant strategy described in the St. Louis Air Quality Management Plan. Due to resource constraints and the magnitude of network changes over the past year, the decision was made to suspend OPSIS special purpose monitor monitoring and data has not been collected for about the last two quarters. After a review of our state special purpose monitoring projects, the decision was made to discontinue monitoring at this location in favor of participating in a joint EPA and state monitoring study to be conducted at the Blair St., St. Louis Site discussed in section 3.3.

#### **3.3 Organic and Elemental Carbon Monitor Evaluation Project**

EPA Office of Air Quality Planning and Standards contacted the EPA Regional Office and the state of Missouri about participating in a three year monitor evaluation study scheduled to begin in the summer/fall of 2011. As part of the project the EPA would provide the monitor and certain related components in exchange for the state providing in-kind staff time to operate and report data to the EPA Air Quality System from the instrument. The proposed location for the study is the Blair St. Site since the site currently part of the NCore, NATTS and Chemical Speciation monitoring programs and data from the Blair St. site is used extensively in various health and air pollution studies. Since elemental and organic carbon account for a significant amount of the particulate matter mass measured at this site at various times, understanding the temporal variation in carbon species relative to the 24-hr integrated filter based carbon data will be useful in understanding the local source contributions and diurnal variation in the carbon concentrations. This project will be useful in supplementing ambient air monitoring data objectives addressed in the St. Louis Air Quality Management Plan.

#### 4. PM<sub>2.5</sub> Monitoring Network

The revised PM<sub>2.5</sub> monitoring network submitted in 2010 included

- Continuous Federal Equivalent Method tapered element oscillating microbalance, or TEOM, sampling.
- Everyday federal reference method, or FRM, sampling.
- Installation of two PM<sub>2.5</sub>/PMCoarse dichotomous samplers (TEOM 1405-DF, Federal Equivalent Method for PM<sub>2.5</sub>) at Blair Street and St. Joseph pump station.
- Collocated FRM monitoring at the Troost site for Federal Equivalent Method comparisons and data quality assessment requirements for 40 CFR Part 58 Appendix A.

In addition, PM<sub>2.5</sub>/PM Coarse dichotomous samplers (Federal Equivalent Method for PM<sub>2.5</sub>) will be deployed at the Branch St., South Broadway and MSU sites by the end of 2011. This is consistent with an approved amendment to the PM<sub>2.5</sub> Grant Workplan (April 2009 – March 2010). The FRM samplers currently at the Branch St. and South Broadway sites will be used as spares should they be needed elsewhere in the network. The SHARP continuous monitor at the MSU site will be removed from service (replaced with the TEOM 1405-DF) and the collocated FRM PM<sub>2.5</sub> sampler will also be removed since the Network PM<sub>2.5</sub> collocated FRM requirements are satisfied at Blair street NCore site.

The current PM<sub>2.5</sub> Grant Workplan (April 2011 – March 2012) includes purchasing four new TEOM 1405-DF continuous PM<sub>2.5</sub> monitors and four new data loggers to upgrade aging TEOM-FDMS-8500C monitors at Arnold West, Liberty, El Dorado Springs and RG\_South. The existing FDMS-8500C PM<sub>2.5</sub> monitors at Arnold and Liberty will remain at those sites for emergency response use. The others will be used as spares.

The PM<sub>10</sub> local conditions (PM<sub>10c</sub>) channel and PMcoarse channel from the TEOM-1405-DF will be reported for each site as a special purpose monitor since they are available simultaneously with the PM<sub>2.5</sub> channel but neither is currently designated as a Federal Equivalent Method. This will provide more temporal and special coverage for the various fractions of particulate mater at the PM<sub>2.5</sub> monitoring sites in the network. The manufacturer of the TEOM-1405-DF is in the process of obtaining a Federal Equivalent Method designation for both the PM<sub>10</sub> and PMcoarse channels on the TEOM-1405-DF monitor.

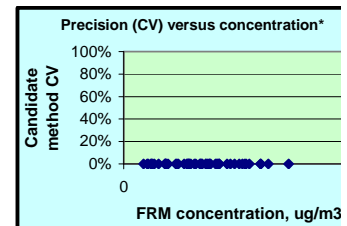
The following page reports the FRM/Federal Equivalent Method Comparability statistics (Class III performance criteria of 40 CFR Part 53) for the initial burn-in period of the TEOM-1405-DF at the Blair St. St. Louis NCore site.

Class III Performance Criteria of 40 CFR Part 53  
Blair St. St. Louis Air Quality System # 29-510-0085  
TEOM-1405-DF, EQPM-0609-182 (PM<sub>2.5</sub>)  
January 6, 2011 through March 6, 2011

Applicant:	Missouri Department of Natural Resources
Candidate method:	PM 2.5 2025 FRM compared to TEOM-1405-DF FEM - Class
Test site:	Blair Street - (Site location )

Data sets	Number
Valid data sets available:	52
Number of valid data sets required for ARM Comparison:	90
<b>Number of valid data sets for this test is:</b>	<b>Insufficient</b>
Additional data sets needed:	38

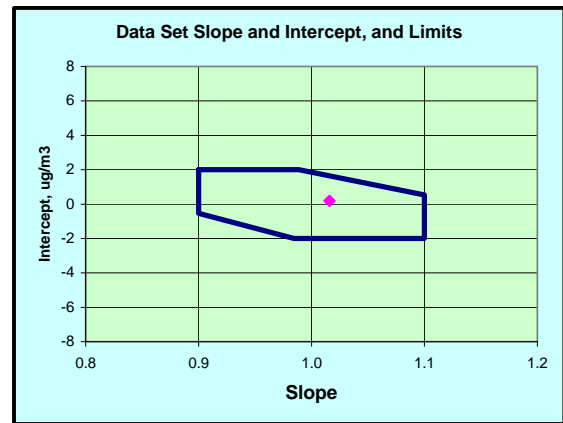
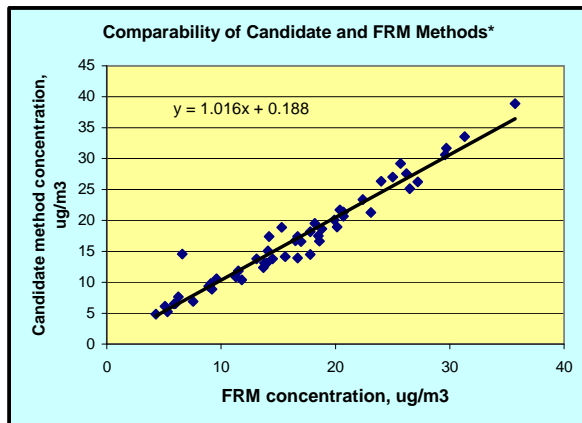
Precision (if data are available)	Data set mean, µg/m <sup>3</sup>		Data set precision, µg/m <sup>3</sup>		Relative precision (CV)	
	FRM	Candidate	FRM	Candidate	FRM	Candidate
Mean:	16.5	16.9	0.2		1.5%	
Maximum:	35.7	38.9	70.7%		2.8%	
Minimum:	4.3	4.9	0.0%		0.0%	
Candidate / FRM Ratio:		102.4%				
RMS Relative Precision for this site:					1.9%	
Test requirements - Class III:					10.0%	15.0%
Precision Test Results for site:					OK	



Regression statistics	Slope <sup>1</sup>	Intercept <sup>2</sup>	Correlation (r)
Statistics for this test site:	1.016	0.188	0.97291
Limits for Class III	Upper: 1.100 Lower: 0.900	1.639 -2.000	0.94165
Test Results (Pass/Fail):	PASS	PASS	PASS

<sup>1</sup>Multiplicative bias    <sup>2</sup>Additive bias

*Note: Precision statistics can be calculated only for data sets containing multiple FRM or multiple candidate ARM measurements.*



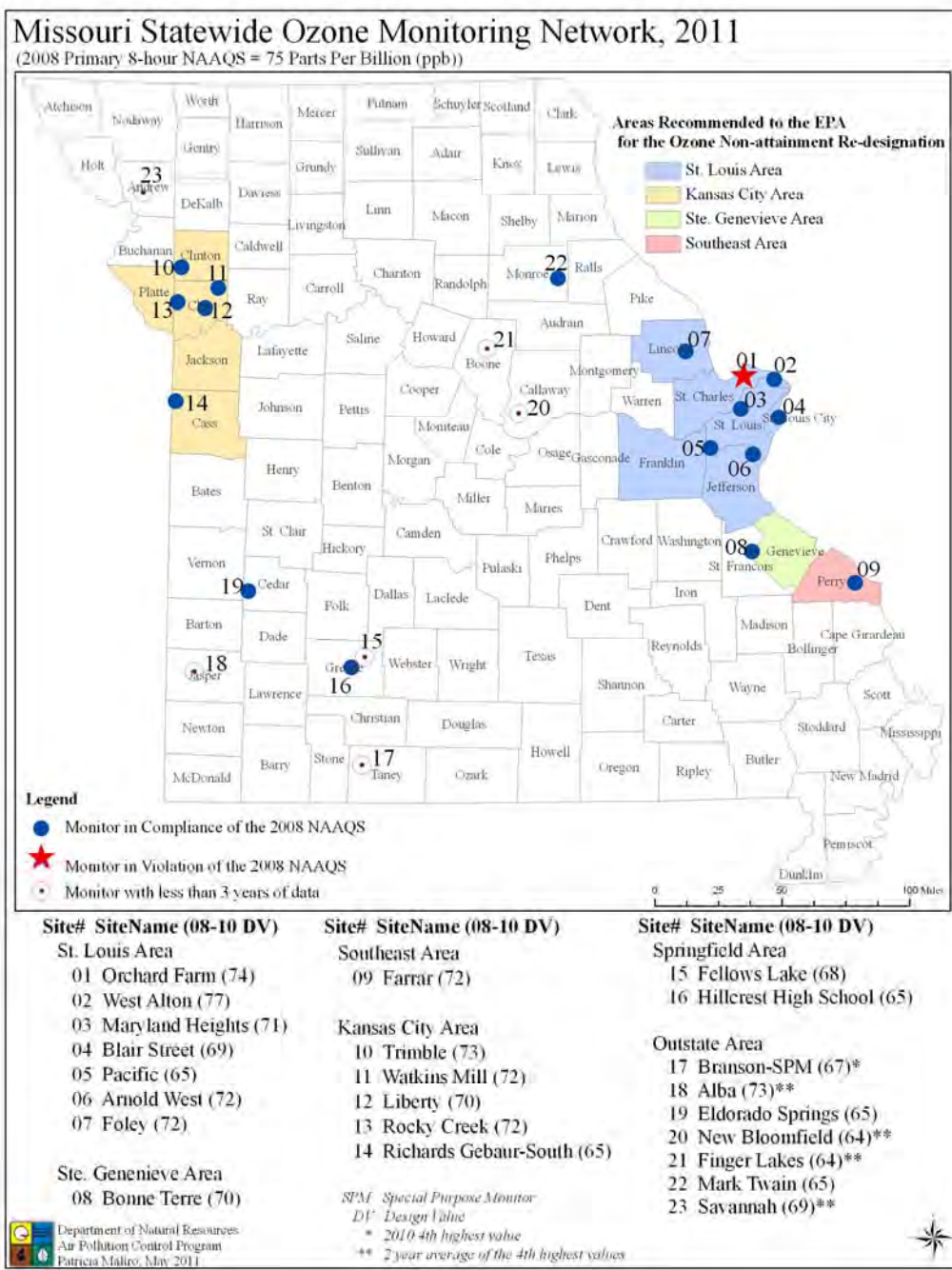
## REVISED PM<sub>2.5</sub> MONITORING NETWORK

Site	Schedule*	Type	Agency	NAAQS
<b>St. Louis</b>				
1. Blair St.	1	FRM	ESP	24 hr & Annual, NCore PMcoarse
	6	Collocated	ESP	Doubles as PMcoarse collocated sampler
	3	Speciation	ESP	
	H	TEOM-1405-DF FEM	ESP	AQI, NCore PM10-2.5 continuous
2. Branch St.	H	TEOM-1405-DF FEM	St. Louis City	24 hr & AQI (Middle Scale Monitor)
3. South Broadway	H	TEOM-1405-DF FEM	St. Louis City	24 hr & Annual/AQI
4. Ladue	H	TEOM-8500C FEM	St. Louis County DOH	24 hr & Annual/AQI
5. Arnold West	3	Speciation	ESP	
	H	TEOM-1405-DF FEM	ESP	24 hr & Annual/AQI
<b>Kansas City</b>				
6. Liberty	3	Speciation	ESP	
	H	TEOM-1405-DF FEM	ESP	24 hr & Annual/AQI
7. Troost	6	Collocated FRM	ESP	24 hr & Annual (Quality Assurance)
	H	TEOM-8500C FEM	ESP	24 hr & Annual/AQI
8. Richards-Gebaur South	H	TEOM-1405-DF FEM	ESP	24 hr & Annual/AQI
<b>Springfield</b>				
9. MSU	H	TEOM-1405-DF FEM	ESP	AQI, PM10-2.5 continuous
<b>St. Joseph</b>				
10. Pump Station	H	TEOM-1405-DF FEM	ESP	24 hr & Annual/AQI, PM10-2.5 continuous
<b>Outstate</b>				
11. El Dorado Springs	H	TEOM-1405-DF FEM	ESP	24 hr & Annual/AQI
	3	IMPROVE	ESP	
12. Bonne Terre	3	Speciation	ESP	
13. Mingo	3	IMPROVE	Fish & Wildlife Service	
14. Hercules Glades	3	IMPROVE	Forest Service	

\* 1 = Everyday sampling; 3 = Every third day; 6 = Every sixth day; H = Continuous monitoring, hourly data reported.

## 5. Ozone Monitoring Network

There are no plan changes to the ozone monitoring network. The current monitoring network is based on the proposed ozone standard and ground-level ozone air quality monitoring network design requirements. If significant changes occur in the final ozone standard or the ground-level ozone air quality monitoring network design requirements these changes will be implemented as required pending available financial resources and any necessary EPA approval.



## **6. Rural National Core**

EPA expressed interest in pursuing the installation and operation of a rural NCore site in Missouri. Department staff suggested EPA consider the Mark Twain State Park Site as a candidate for consideration of the rural NCore site due to its location and the historically low PM<sub>10</sub> and SO<sub>2</sub> concentrations measured at the site. The Mark Twain State Park site also appears to be in a unique Omernik Ecoregion III classification scheme region from which NCore monitoring data could help support the potential NO<sub>x</sub>/SO<sub>x</sub> Secondary Standard that will likely be proposed by EPA. EPA Region 7 Staff intend to visit the site and render an evaluation of its suitability for a rural NCore site. EPA is considering providing up-front one-time equipment purchases and continued operation and maintenance funds to support this project. Since this project would be in addition to existing NCore monitoring requirements which the state of Missouri has satisfied at the Blair St. site, the department is waiting for EPA to identify specifically what funding will be available for this project before committing resources to the project. The department will continue to work with EPA Region 7 staff to pursue this project for 2011.

## **7. PM<sub>10</sub> Monitoring Network**

Only one minor change to the PM<sub>10</sub> network is planned for 2011. The Margaretta high volume sampling method (the last of this method operating in the state PM<sub>10</sub> network) will be replaced with a PM<sub>10</sub> tapered element oscillating microbalance which is used at multiple sites throughout the network. This increases efficiency by reducing the resources necessary to maintain a number of different PM<sub>10</sub> methods in the network and increases the sampling frequency from every 6 days to hourly for additional temporal resolution of PM<sub>10</sub> data at this site.

Depending on the decision concerning the rural NCore site proposed at Mark Twain State Park discussed previously in section 6, the PM<sub>10</sub> sampling at Mark Twain State Park will be resumed as a special purpose monitor for the purposes of monitoring background PM<sub>10</sub> concentrations that have been used to support PM<sub>10</sub> Prevention of Significant Deterioration monitoring project evaluations.

## **8. Monitor Discontinuances**

The state of Missouri proposes to permanently discontinue the following samplers, including several nitrogen dioxide, sulfur dioxide, carbon monoxide, PM<sub>10</sub> and lead samplers and one ammonia and one hydrogen sulfide samplers (see the table below). These samplers were shut down last year due to economic hardship with regard to state budgets. Most of these samplers are the carbon monoxide, nitrogen dioxide, sulfur dioxide monitors which are required to be addressed in monitoring network plans by 2012 to meet network criteria in 2013. All of these samplers are showing levels well within NAAQS compliance for several years as shown on the following tables. There are no minimum requirements for carbon monoxide sampler numbers, other than NCore which will be maintained. The lead and PM<sub>10</sub> samplers named are not required by federal regulations. Depending on the decision concerning the rural NCore site proposed at Mark Twain State Park discussed previously in section 6, the PM<sub>10</sub> sampling at the state park

will be resumed as a special purpose monitor for the purposes of monitoring background PM<sub>10</sub> concentrations that have been used to support PM<sub>10</sub> Prevention of Significant Deterioration monitoring project evaluations.

### MONITORS TO BE PERMANENTLY DISCONTINUED

Site Name	Location	Proposed for temporary shutdown						
Margaretta	SL City			CO				
				SLAMS				
Mound St	SL City				PM10			
					SPMS			
S. Broadway	SL City		SO2					
			SLAMS					
Maryland Heights	SL County	NO2	SO2					
		SLAMS	SLAMS					
Ladue	SL County	NO2	SO2					
		SLAMS	SLAMS					
Clayton	SL County					Pb		
						SLAMS		
Sunset Hills	SL County	NO2		CO				
		SLAMS		SLAMS				
Hillcrest H. Sch.	Spg	NO2						
		SLAMS						
MSU	Spg		SO2	CO	PM10			
			SLAMS	SPMS	Collocated			
Liberty	ESP	NO2						
		SLAMS						
Bonne Terre	ESP	NO2						
		SLAMS						
Mark Twain State Park	ESP		SO2		PM10			
			SLAMS		SLAMS			
Green City	ESP						H2S	NH3
							SPM	SPM
West Alton	ESP	NO2						
		SLAMS						
Totals		7 NO2	5 SO2	3 CO	3 PM10	1 Pb	1 H2S	1 NH3

Tables of Sample Results Showing Compliance for  
Samplers to be Permanently Discontinued

**PM<sub>10</sub> 24hr (ug/m3)**

<b>Site Name</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010*</b>
2nd & Mound:								
1st Max	62	58	65	71	66	70	40	104
2 <sup>nd</sup> Max	57	49	63	55	66	38	37	90
3rd Max	47	46	61	44	60	38	36	86
4th Max	45	44	61	42	58	37	34	86
MSU: 1st Max	40	36	45	35	38	39	27	36
2nd Max	39	30	44	30	37	34	26	32
3rd Max	30	30	38	29	36	29	25	30
4th Max	27	29	35	28	31	25	23	30
Mark Twain:								
1st Max	38	32	46	32	33	35	36	26
2nd Max	38	29	35	29	32	32	24	25
3rd Max	36	23	34	29	26	29	23	24
4th Max	31	23	33	25	26	27	23	21

**CO**

<b>Site Name</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010*</b>
<b>1-hour 2<sup>nd</sup> High</b>								
<b>35 ppm</b>								
Sunset Hills	-	-	1.7**	1.5	1.2	1.4	0.9	0.8
Margaretta	4.5	4.3	4.7	3.9	3.4	4.2	2.4	1.9
MSU	4.0	4.0	4.0	3.0	4.0	1.8	2.2	1.7
<b>8-hour 2<sup>nd</sup> High</b>								
<b>9 ppm</b>								
Sunset Hills	-	-	1.3	1.2	1.0	0.8	0.7	0.6
Margaretta	3.0	2.8	3.0	2.5	2.7	2.8	1.7	1.2
MSU	2.0	2.4	2.8	2.1	2.1	1.2	1.3	1.0

\*Data through September 30<sup>th</sup> 2010

### SO<sub>2</sub> 1-hour Average Daily Maximum Concentrations (ppb)

	99th Percentile								Design Values (NAAQS = 75 ppb)					
Site Name	2003	2004	2005	2006	2007	2008	2009	2010*	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009	2008-2010*
MSU	14	18	23	26	26	33	25	33	18	22	25	28	28	30
MTSP	13	17	15	12	12	12	13	11	15	15	13	12	12	12
Maryland Heights	-	-	34	35	38	35	41	34	-	-	36	36	38	37
Ladue	50	59	48	57	44	47	47	38	52	55	50	49	46	44
South Broadway	62	62	54	74	42	57	35	34	59	63	57	58	45	42

\*Data through September 30<sup>th</sup> 2010

### NO<sub>2</sub> 1-hour Average Daily Maximum Concentrations (ppb)

	98th Percentile								Design Values (NAAQS = 100 ppb)					
Site Name	2003	2004	2005	2006	2007	2008	2009	2010*	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009	2008-2010*
West Alton	37	35	39	35	37	31	34	33	37	36	37	34	34	33
Sunset Hill	52	42	45	46	44	43	39	42	46	44	45	44	42	41
Maryland Heights	-	-	41	42	40	35	33	38	-	-	41	39	36	35
Ladue	54	49	50	52	46	46	40	44	51	50	49	48	44	43
Liberty	40	41	41	37	39	36	32	39	41	40	39	37	36	36
Hillcrest H. Sch	55	49	54	52	50	45	50	52	53	52	52	49	48	49
Bonne Terre	25	21	22	17	20	17	17	19	23	20	20	18	18	18

\*Data through September 30<sup>th</sup> 2010

## Network Description/Components

See Appendix 1 for the Network Description, which includes the following components.

### Site Data

All ambient air monitoring sites are recorded in the EPA's Air Quality System database. Data includes location data such as latitude & longitude.

#### Air Quality System Site Code

The site code includes a numerical designation for State, county, and individual site. The state and county codes are assigned a number based on the alphabetical order of the State or county. Site numbers are assigned sequentially by date established in most counties. St. Louis County sites also have a division for municipality within St. Louis County.

#### Street Address

The official Post Office address of the lot where the monitors are located. Because not all sites are located in cities or towns, the street address is occasionally given as the intersection of the nearest streets or highways.

#### Geographical Coordinates

The coordinate system used by Missouri Department of Natural Resources is latitude and longitude.

#### Air Quality Control Region

Air Quality Control Regions, or AQCR, are defined by EPA and designates either urban regions, like St. Louis or Kansas City, or rural sections of a state, such as northeast or southwest Missouri.

<u>AQCR</u>	<u>AQCR Name</u>
070	Metropolitan St. Louis
094	Metropolitan Kansas City
137	Northern Missouri
138	SE Missouri
139	SW Missouri

#### Metropolitan Statistical Area

Metropolitan statistical areas, or MSA, are defined by the U.S. Census Bureau.

<u>MSA Code</u>	<u>MSA Name</u>
0000	Not in a MSA
1740	Columbia
3710	Joplin
3760	Kansas City, MO-KS
7000	St. Joseph
7040	St. Louis, MO-IL
7920	Springfield

### Monitor Data

Each monitor is designed to detect a specific chemical pollutant or group of related pollutants. A site may have one or many monitors and not all sites will have the same monitors.

### Pollutant

The common name of the pollutant. “Criteria” pollutants are defined by statute in the Clean Air Act.

### Air Quality System Pollutant Code

Each pollutant has a specific numerical code to distinguish it from others. One monitor in St. Louis City uses a code of ‘00000’ because the monitor detects an entire group of chemicals, volatile organic pollutants, which are too numerous to list individually.

<u>Pollutant Code</u>	<u>Pollutant</u>
00000	Volatile Organic Compounds, or VOCs
12128	Lead
14129	Lead – Local Conditions
42101	Carbon Monoxide
42242	Mercury vapor
42401	Sulfur Dioxide
42402	Hydrogen Sulfide
42406	Sulfur Dioxide 5-min
42602	Nitrogen Dioxide
42604	Ammonia
43502	Formaldehyde
44201	Ozone
45201	Benzene
45202	Toluene
61103	Resultant Wind Speed
61104	Resultant Wind Direct
62101	Outdoor Temperature
62107	Indoor Temperature
62201	Relative Humidity
63301	Solar Radiation
64101	Barometric Pressure
81102	PM <sub>10</sub>
84313	Black Carbon
85101	PM <sub>10</sub> - LC
88101	PM <sub>2.5</sub> FRM
88500	PM <sub>2.5</sub> Tot Atmospheric
88501	PM <sub>2.5</sub> Raw Data
88502	PM <sub>2.5</sub> AQI/Speciation
88503	PM <sub>2.5</sub> reference

### Parameter Occurrence Code

The Parameter Occurrence Code distinguishes between different monitors for the same pollutant, most often collocated monitors used for precision and quality assurance. For PM<sub>2.5</sub>, different parameter occurrence codes are assigned to FRM, collocated FRM, continuous, and speciation monitors.

### Collocated

Collocated monitors are used for precision and quality assurance activities, and for redundancy for critical pollutants such as ozone.

### Sampling Frequency

Sampling frequency varies for each pollutant, depending on the nature of the NAAQS standard and the technology used in the monitoring method. Most gaseous pollutants use continuous monitors and are averaged over one hour. Particulate pollutants are mostly filter-based and averaged over one day.

### Scale of Representation

Each monitor is intended to represent an area with similar pollutant concentration. The scales range from only a few meters to many kilometers.

MIC Microscale - defines the concentration in air volumes associated with area dimensions ranging from several meters up to about 100 meters.

MID Middle - defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometers.

NBR Neighborhood - defines concentrations within an extended area of a city that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometers.

URB Urban - defines an overall citywide condition with dimensions on the order of 4 to 50 kilometers.

REG Regional - defines air quality levels over areas having dimensions of 50 to hundreds of kilometers.

### Monitoring Objective

Each monitor has a distinct objective such as providing real-time data for public awareness or use in determining compliance with regulations.

<u>Objective Code</u>	<u>Objective</u>
AQI	Public Information
COM	NAAQS Compliance
MET	Meteorological Data
RES	Research
STA	State Standard

### Units

The physical terms used to quantify the pollutant concentration, such as parts per million or micrograms per cubic meter.

<u>Unit Code</u>	<u>Unit Description</u>
001	$\mu\text{g}/\text{m}^3$
007	parts per million
008	parts per billion
012	miles per hour
013	knots
014	degree, compass
015	degree Fahrenheit
017	degree Celsius
018	Langley's
019	percent humidity
022	inches Mercury
025	Langley's per minute
079	$\text{Watts}/\text{m}^2$
105	$\mu\text{g}/\text{m}^3$ LC
121	parts per trillion

### Monitoring/Analytical Method

Each monitor relies on a scientific principle to determine the pollutant concentration, which is described by the sampling method. Each method code is specific for a particular pollutant; therefore a three numeral code may be used for different methods for different pollutants.

## *Missouri Ambient Air Monitoring Network*



<b>MIC</b>	<b>Microscale</b>	<b>1 to 100 square meters</b>
<b>MID</b>	<b>Middle</b>	<b>0.1 to 0.5 square kilometer</b>
<b>NBR</b>	<b>Neighborhood</b>	<b>0.5 to 4 square kilometers</b>
<b>REG</b>	<b>Regional</b>	<b>&gt; 10 square kilometers, rural</b>
<b>URB</b>	<b>Urban</b>	<b>4 to 50 square kilometers, city</b>
<b>COM</b>	<b>NAAQS Compliance</b>	
<b>MET</b>	<b>Meteorological Data</b>	
<b>Mpsd</b>	<b>Monitor Proposed for Temporary Shutdown</b>	
<b>NCore</b>	<b>National Multi-pollutant Monitoring Stations</b>	
<b>NON-A</b>	<b>Non-Ambient Site</b>	
<b>NON-R</b>	<b>Non-Regulatory</b>	
<b>RES</b>	<b>Research</b>	
<b>SLAMS</b>	<b>State and Local Monitoring Stations</b>	
<b>SIP</b>	<b>State Implementation Plan</b>	
<b>SPEC</b>	<b>Speciation</b>	
<b>STA</b>	<b>State Standard</b>	
<b>SPM</b>	<b>Special Purpose Monitoring</b>	
<b>**</b>	<b>TEOM 1405-DFs Approved for Purchase</b>	

## City Utilities

### James River South

**AQS Site Number 29-077-0037**

James River South, Springfield, MO 12435

**Latitude:** 37.104461 **AQCR:** 139 SW Missouri

**Longitude:** -93.25339 **MSA:** 7920 Springfield, MO

**Elevation (ft):** 1227

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Sulfur Dioxide	42401	Industrial	3	<input type="checkbox"/>	H	MID	COM	008	ppb	060	Pulsed Fluorescent	
Sulfur Dioxide Max 5-min Avg	42406	Industrial	3	<input type="checkbox"/>	H	MID	COM	008	ppb	060	Pulsed Fluorescent	

### Wildwood Lane

**AQS Site Number 29-077-0040**

1234 Wildwood Lane, Springfield, MO 12435

**Latitude:** 37.108889 **AQCR:** 139 SW Missouri

**Longitude:** -93.252778 **MSA:** 7920 Springfield, MO

**Elevation (ft):** 1231

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Sulfur Dioxide	42401	Industrial	1	<input type="checkbox"/>	H	MID	COM	008	ppb	060	Pulsed Fluorescent	
Sulfur Dioxide Max 5-min Avg	42406	Industrial	1	<input type="checkbox"/>	H	MID	COM	008	ppb	060	Pulsed Fluorescent	

## Doe Run Buick

### Doe Run Buick - Buick NE

AQS Site Number **29-093-9008**

347 Power Lane (Address, Elevation, Lati, and Longi to be confirmed)

**Latitude:** 37.65214 **AQCR:** 138 SE Missouri

**Longitude:** -91.11689 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 1423

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	Industrial	1	<input type="checkbox"/>	1/6	MID	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input type="checkbox"/>	1/6	MID	COM	105	ug/m^3-LC	113	Doe Run Mass Spectra ICAP	
Sample Baro Pressure	68108	Industrial	1	<input type="checkbox"/>	1/6	MID	COM	059	mm (Hg)	780	Instrumental	

### Doe Run Buick - North #5

AQS Site Number **29-093-0021**

Doe Run Buick - North#5, Buick, MO 65439

**Latitude:** 37.654167 **AQCR:** 138 SE Missouri

**Longitude:** -91.130556 **MSA:** 0000 Not in a MSA

**Elevation (ft):**

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	Industrial	1	<input type="checkbox"/>	1/6	MID	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input type="checkbox"/>	1/6	MID	COM	105	ug/m^3-LC	113	Doe Run Mass Spectra ICAP	
Sample Baro Pressure	68108	Industrial	1	<input type="checkbox"/>	1/6	MID	COM	059	mm (Hg)	780	Instrumental	

## *Doe Run Buick - South #1*

*AQS Site Number* **29-093-0016**

Doe Run Buick - South#1, Buick, MO 65439

*Latitude:* 37.625278 *AQCR:* 138 SE Missouri

*Longitude:* -91.129167 *MSA:* 0000 Not in a MSA

*Elevation (ft):*

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	Industrial	1	<input checked="" type="checkbox"/>	1/6	MID	SIP	017	deg C	780	Instrumental	NON-A
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input checked="" type="checkbox"/>	1/6	MID	SIP	105	ug/m^3-LC	113	Doe Run Mass Spectra ICAP	NON-A
Sample Baro Pressure	68108	Industrial	1	<input checked="" type="checkbox"/>	1/6	MID	SIP	059	mm (Hg)	780	Instrumental	NON-A

# Doe Run Glover

## Doe Run Glover - Big Creek #5

AQS Site Number 29-093-0029

Doe Run Glover - Big Creek #5, Glover, MO 65439

**Latitude:** 37.471667 **AQCR:** 138 SE Missouri

**Longitude:** -90.689444 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 927

Pollutant	AQS Code	Monitor-Type	POC	Col	Freq	Scale	Obj	Unit-Code	Unit	Method-Code	Method	Monitor-Status
Ambient Temperature	68105	Industrial	1	<input type="checkbox"/>	1/6	MID	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input type="checkbox"/>	1/6	MID	COM	105	ug/m^3-LC	110	Pima Co., AZ Mass Spectra ICAP	
Sample Baro Pressure	68108	Industrial	1	<input type="checkbox"/>	1/6	MID	COM	059	mm (Hg)	780	Instrumental	

## Doe Run Glover - Post Office #2

AQS Site Number 29-093-0027

Doe Run Glover - Post Office #2, Glover, MO 65439

**Latitude:** 37.486111 **AQCR:** 138 SE Missouri

**Longitude:** -90.69 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 927

Pollutant	AQS Code	Monitor-Type	POC	Col	Freq	Scale	Obj	Unit-Code	Unit	Method-Code	Method	Monitor-Status
Ambient Temperature	68105	Industrial	1	<input checked="" type="checkbox"/>	1/6	MID	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input checked="" type="checkbox"/>	1/6	MID	COM	105	ug/m^3-LC	110	Pima Co., AZ Mass Spectra ICAP	
Sample Baro Pressure	68108	Industrial	1	<input checked="" type="checkbox"/>	1/6	MID	COM	059	mm (Hg)	780	Instrumental	

## Doe Run Herculaneum

### Herculaneum, Broad Street

AQS Site Number **29-099-9005**

Broad St., Herculaneum, MO, 63048

**Latitude:** 38.261667 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.379722 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 500

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Ambient Temperature	68105	Industrial	1	<input type="checkbox"/>	1/6	MID	SIP	017	deg C	780	Instrumental	NON-A
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input type="checkbox"/>	1/6	MID	SIP	105	ug/m^3-LC	113	Doe Run Mass Spectra ICAP	NON-A
Sample Baro Pressure	68108	Industrial	1	<input type="checkbox"/>	1/6	MID	SIP	059	mm (Hg)	780	Instrumental	NON-A

### Herculaneum, Church Street

AQS Site Number **29-099-0024**

951 Church St., Herculaneum, MO 63048

**Latitude:** 38.258667 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.380889 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 463

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Ambient Temperature	68105	Industrial	1	<input checked="" type="checkbox"/>	1/3	NBR	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input checked="" type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	113	Doe Run Mass Spectra ICAP	
Sample Baro Pressure	68108	Industrial	1	<input checked="" type="checkbox"/>	1/3	NBR	COM	059	mm (Hg)	780	Instrumental	

## Herculaneum, Dunklin High School

AQS Site Number 29-099-9002

1 Black Cat Dr., Herculaneum, MO, 63048

**Latitude:** 38.267222 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.37833 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 445

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	Industrial	1	<input type="checkbox"/>	1/3	NBR	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	113	Doe Run Mass Spectra ICAP	
Sample Baro Pressure	68108	Industrial	1	<input type="checkbox"/>	1/3	NBR	COM	059	mm (Hg)	780	Instrumental	

## Herculaneum, Mott Street

AQS Site Number 29-099-9007

Mott Street, Herculaneum, MO, 63048

**Latitude:** 38.263394 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.379667 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 468

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	Industrial	1	<input checked="" type="checkbox"/>	1/1	MID	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input checked="" type="checkbox"/>	1/1	MID	COM	105	ug/m^3-LC	113	Doe Run Mass Spectra ICAP	
Sample Baro Pressure	68108	Industrial	1	<input checked="" type="checkbox"/>	1/1	MID	COM	059	mm (Hg)	780	Instrumental	

## Herculaneum, North Cross

AQS Site Number 29-099-0023

North Cross, Herculaneum, MO 63048

**Latitude:** 38.263378 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.381122 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 463

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
------------------	-----------------	--------------------------	------------	------------	-------------	--------------	------------	-----------------------	-------------	-------------------------	---------------	----------------------------

Ambient Temperature	68105	Industrial	1	<input type="checkbox"/>	1/1	NBR	COM	017	deg C	780	Instrumental
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input type="checkbox"/>	1/1	NBR	COM	105	ug/m^3-LC	113	Doe Run Mass Spectra ICAP
Sample Baro Pressure	68108	Industrial	1	<input type="checkbox"/>	1/1	NBR	COM	059	mm (Hg)	780	Instrumental

## Herculaneum, Sherman

**AQS Site Number 29-099-9004**

460 Sherman St., Herculaneum, MO, 63048

**Latitude:** 38.2717 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.376520 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 462

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	113	Doe Run Mass Spectra ICAP	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	780	Instrumental	

## Ursuline North

**AQS Site Number 29-099-9006**

210 Glennon Heights Rd., Crystal City, MO 63019

**Latitude:** 38.243 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.37372 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 578

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	Industrial	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	Industrial	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	113	Doe Run Mass Spectra ICAP	
Sample Baro Pressure	68108	Industrial	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	780	Instrumental	

# Environmental Services

## Alba

**AQS Site Number 29-097-0004**

20400 Millwood Rd., Alba, MO 64755

**Latitude:** 37.2348 **AQCR:** 139 SW Missouri

**Longitude:** -94.42475 **MSA:** 3710 Joplin, MO

**Elevation (ft):** 965

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/1	NBR	COM	017	deg C	780	Instrumental	
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/1	NBR	COM	059	mm (Hg)	780	Instrumental	

## Arnold West

**AQS Site Number 29-099-0019**

1709 Lonedell Dr., Arnold, MO 63010

**Latitude:** 38.448581 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.398436 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 636

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Acceptable PM2.5 AQI/SPEC	88502	SPEC	6	<input type="checkbox"/>	1/3	NBR	RES	105	ug/m^3-LC	810	METONE SASS	
Acceptable PMCoarse - LC	86502	SPM	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF	**
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	H	NBR	MET	017	deg C	040	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	

PM10 - LC	85101	SPM	5	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**
PM2.5 - LC	88101	SLAMS	4	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	**
PM2.5 - LC	88101	SLAMS	3	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	181	PM2.5 VSCC FEM	
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**
PM2.5 Tot Atmospheric	88500	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
PM2.5 Volatile Channel	88503	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**
PM2.5 Volatile Channel	88503	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	

## Bill's Creek

AQS Site Number **29-179-0001**

0.75 mile S. of 3229 County Rd., Boss, MO 65440

**Latitude:** 37.53467 **AQCR:** 138 SE Missouri

**Longitude:** -91.14857 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 996

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	803	Off-Site Avg Temperature	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	803	Off-Site Avg Pressure	

**Blair Street (NCORE Site, Pb Monitor: Proposed)****AQS Site Number 29-510-0085**

3247 Blair Street, St. Louis, MO 63107

**Latitude:** 38.65640 **AQCR:** 070 Metropolitan St. Louis**Longitude:** -90.19845 **MSA:** 7040 St. Louis, MO-IL**Elevation (ft):** 450

<b>Pollutant</b>	<b>AQS Code</b>	<b>Monitor- Type</b>	<b>POC</b>	<b>Col</b>	<b>Freq</b>	<b>Scale</b>	<b>Obj</b>	<b>Unit- Code</b>	<b>Unit</b>	<b>Method- Code</b>	<b>Method</b>	<b>Monitor- Status</b>
Acceptable PM2.5 AQI/SPEC	88502	SPEC	6	<input type="checkbox"/>	1/3	NBR	RES	105	ug/m^3-LC	810	METONE SASS	
Acceptable PMCoarse - LC	86502	NCORE	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF	
Ambient Temperature	68105	SLAMS	3	<input checked="" type="checkbox"/>	1/3	NBR	COM	017	deg C	127	Lo-Vol R&P 2025 Sequential	
Ambient Temperature	68105	SLAMS	1	<input checked="" type="checkbox"/>	1/1	NBR	COM	017	deg C	118	Lo-Vol R&P 2025 Sequential	
Baro Pressure	64101	SLAMS	1	<input type="checkbox"/>	H	NBR	MET	022	in (Hg)	011	Aneroid	
Black Carbon PM2.5 STP	84313	SLAMS	1	<input type="checkbox"/>	H	NBR	RES	001	ug/m^3	866	Magee Scientific AE21ER	
Carbon Monoxide	42101	NCORE	1	<input type="checkbox"/>	H	MID	COM	007	ppm	054	Non-dispersive Infrared	
Indoor Temperature	62107	SLAMS	1	<input type="checkbox"/>	H	N/A	COM	017	deg C	013	Electronic Averaging	
Lead (TSP) - LC FRM/FEM	14129	NCORE	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Outdoor Temperature	62101	SLAMS	1	<input type="checkbox"/>	H	NBR	MET	017	deg C	040	Electronic Averaging	
Ozone	44201	NCORE	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	
PM10 - LC	85101	SLAMS	5	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF	
PM10 - LC	85101	SLAMS	1	<input checked="" type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	127	Lo-Vol R&P 2025 Sequential	
PM10 - Total STP	81102	SLAMS	1	<input checked="" type="checkbox"/>	1/3	NBR	COM	001	ug/m^3	127	Lo-Vol R&P 2025 Sequential	

PM2.5 - LC	88101	SLAMS	1	<input checked="" type="checkbox"/>	1/1	NBR	COM	105	ug/m^3-LC	118	Lo-Vol R&P 2025 Sequential
PM2.5 - LC	88101	SLAMS	4	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	182	FDMS- Gravimetric 1405- DF
PM2.5 Tot Atmospheric	88500	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF
PM2.5 Volatile Channel	88503	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF
PMCoarse - LC (FRM Diff)	86101	SLAMS	1	<input type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	176	Thermo 2025 Sequential PM10- PM2.5
Reactive Oxides of N (NOY)	42600	NCORE	1	<input type="checkbox"/>	H	NBR	COM	008	ppb	074	Chemiluminesce nce
Relative Humidity	62201	SLAMS	1	<input type="checkbox"/>	H	N/A	MET	019	%humidity	020	Instrumental
Sample Baro Pressure	68108	SLAMS	3	<input checked="" type="checkbox"/>	1/3	NBR	COM	059	mm (Hg)	127	Lo-Vol R&P 2025 Sequential
Sample Baro Pressure	68108	SLAMS	1	<input checked="" type="checkbox"/>	1/1	NBR	COM	059	mm (Hg)	118	Lo-Vol R&P 2025 Sequential
Solar Radiation	63301	SLAMS	1	<input type="checkbox"/>	H	NBR	MET	079	W/m^2	011	Instrumental
Sulfur Dioxide	42401	NCORE	1	<input type="checkbox"/>	H	NBR	COM	008	ppb	600	Ultraviolet Fluorescence API 100 EU
Sulfur Dioxide Max 5-min Avg	42406	NCORE	1	<input type="checkbox"/>	H	NBR	COM	008	ppb	600	Ultraviolet Fluorescence API 100 EU
Wind Direction - Resultant	61104	SLAMS	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation
Wind Speed - Resultant	61103	SLAMS	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation

## Bonne Terre

**AQS Site Number 29-186-0005**

15797 Highway D, Bonne Terre, MO 63628

**Latitude:** 37.90084 **AQCR:** 138 SE Missouri

**Longitude:** -90.42388 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 840

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
------------------	-----------------	--------------------------	------------	------------	-------------	--------------	------------	-----------------------	-------------	-------------------------	---------------	----------------------------

Acceptable PM2.5 AQI/SPEC	88502	SPEC	5	<input type="checkbox"/>	1/6	REG	RES	105	ug/m^3-LC	810	METONE SASS
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/1	REG	COM	017	deg C	780	Instrumental
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	REG	COM	007	ppm	047	Ultraviolet Photometric
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/1	REG	COM	059	mm (Hg)	780	Instrumental
Solar Radiation	63301	SPM	1	<input type="checkbox"/>	H	REG	MET	079	W/m^2	011	Instrumental
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	REG	MET	014	deg	020	Vector Summation
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	REG	MET	012	mph	020	Vector Summation

## Branson

**AQS Site Number 29-213-0004**

251 SW. Outer Rd., Branson, MO 65616

**Latitude:** 36.70765 **AQCR:** 139 SW Missouri

**Longitude:** -93.22181 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 1052

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	COM	017	deg C	013	Electronic Averaging	
Ozone	44201	SPM	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	COM	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	COM	012	mph	020	Vector Summation	

**Buick NE (SO<sub>2</sub>, WS, WD Monitors: Proposed)****AQS Site Number 29-093-0034**

347 Power Lane (Address, Elevation, Lati, and Longi to be confirmed)

**Latitude:** 37.65214 **AQCR:** 138 SE Missouri**Longitude:** -91.11689 **MSA:** 0000 Not in a MSA**Elevation (ft):** 1423

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	SPM	1	<input checked="" type="checkbox"/>	1/1	MID	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input checked="" type="checkbox"/>	1/6	MID	COM	105	ug/m <sup>3</sup> -LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input checked="" type="checkbox"/>	1/1	MID	COM	059	mm (Hg)	780	Instrumental	
Sulfur Dioxide	42401	SLAMS	1	<input type="checkbox"/>	H	MID	COM	008	ppb	060	Pulsed Fluorescent	
Sulfur Dioxide Max 5-min Avg	42406	SLAMS	1	<input type="checkbox"/>	H	MID	COM	008	ppb	060	Pulsed Fluorescent	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	

**Carthage****AQS Site Number 29-097-0003**

530 Juniper, Carthage, MO 64836

**Latitude:** 37.21000 **AQCR:** 139 SW Missouri**Longitude:** -94.307778 **MSA:** 3710 Joplin, MO**Elevation (ft):** 986

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
PM10 - Total STP	81102	SLAMS	3	<input type="checkbox"/>	H	MID	COM	001	ug/m <sup>3</sup>	079	R&P SA246B TEOM	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	

Wind Speed - Resultant    61103    SPM    1    ☐    H    NBR    MET    012    mph    020    Vector Summation

## Corridon

**AQS Site Number 29-179-0003**

415 RR1, Ellington, MO 63638

**Latitude:** 37.36414    **AQCR:** 138    SE Missouri

**Longitude:** -91.12226    **MSA:** 0000    Not in a MSA

**Elevation (ft):** 980

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	803	Off-Site Avg Temperature	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	803	Off-Site Avg Pressure	

## El Dorado Springs

**AQS Site Number 29-039-0001**

Highway 97 & Barnes Road, El Dorado Springs, MO 64744

**Latitude:** 37.6900    **AQCR:** 139    SW Missouri

**Longitude:** -94.035    **MSA:** 0000    Not in a MSA

**Elevation (ft):** 965

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Acceptable PMCoarse - LC	86502	SPM	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Outdoor Temperature	62101	SLAMS	1	<input type="checkbox"/>	H	REG	MET	017	deg C	040	Electronic Averaging	
Ozone	44201	SLAMS	1	<input type="checkbox"/>	H	REG	COM	007	ppm	047	Ultraviolet Photometric	
PM10 - LC	85101	SPM	5	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**
PM2.5 - LC	88101	SLAMS	3	<input type="checkbox"/>	H	REG	COM	105	ug/m^3-LC	181	PM2.5 VSCC FEM	

PM2.5 - LC	88101	SLAMS	4	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	**
PM2.5 Tot Atmospheric	88500	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**
PM2.5 Tot Atmospheric	88500	NON-R	3	<input type="checkbox"/>	H	REG	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
PM2.5 Volatile Channel	88503	NON-R	3	<input type="checkbox"/>	H	REG	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
PM2.5 Volatile Channel	88503	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	REG	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	REG	MET	012	mph	020	Vector Summation	

## Farrar

**AQS Site Number 29-157-0001**

County Rd. 342, Farrar, MO 63746

**Latitude:** 37.70264 **AQCR:** 138 SE Missouri

**Longitude:** -89.698640 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 497

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	

## Finger Lakes

AQS Site Number 29-019-0011

1505 E. Peabody Road, Columbia, MO 65202

**Latitude:** 39.0786 **AQCR:** 137 Northern Missouri

**Longitude:** -92.31517 **MSA:** 1740 Columbia, MO

**Elevation (ft):** 710

Pollutant	AQS Code	Monitor-Type	POC	Col	Freq	Scale	Obj	Unit-Code	Unit	Method-Code	Method	Monitor-Status
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	

## Fletcher

AQS Site Number 29-179-0002

Forest Rd. 2236, Westfork, MO 64498

**Latitude:** 37.46889 **AQCR:** 138 SE Missouri

**Longitude:** -91.08847 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 1256

Pollutant	AQS Code	Monitor-Type	POC	Col	Freq	Scale	Obj	Unit-Code	Unit	Method-Code	Method	Monitor-Status
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	803	Off-Site Avg Temperature	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	803	Off-Site Avg Pressure	

## Foley

AQS Site Number 29-113-0003

#7 Wild Horse, Foley, MO 63347

**Latitude:** 39.0447 **AQCR:** 137 Northern Missouri

**Longitude:** -90.8647 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 715

Pollutant	AQS Code	Monitor-Type	POC	Col	Freq	Scale	Obj	Unit-Code	Unit	Method-Code	Method	Monitor-Status
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	

Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation

## Front Street

**AQS Site Number 29-095-0018**

1331 N. Jackson, Kansas City, MO 64120

**Latitude:** 39.13198 **AQCR:** 094 Metropolitan Kansas City

**Longitude:** -94.53128 **MSA:** 3760 Kansas City, MO-KS

**Elevation (ft):** 728

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	127	Lo-Vol R&P 2025 Sequential	
PM10 - LC	85101	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	127	Lo-Vol R&P 2025 Sequential	
PM10 - Total STP	81102	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	001	ug/m^3	127	Lo-Vol R&P 2025 Sequential	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	127	Lo-Vol R&P 2025 Sequential	

## Glover

**AQS Site Number 29-093-0033**

Highway 49, approx. 0.4m South Highways 21/49/72 Intersection, Glover, 63620

**Latitude:** 37.48964 **AQCR:** 138 SE Missouri

**Longitude:** -90.69247 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 881

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	803	Off-Site Avg Temperature	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	803	Off-Site Avg Pressure	

## Herculaneum, Dunklin High School

AQS Site Number 29-099-0005

1 Black Cat Dr., Herculaneum, MO, 63048

**Latitude:** 38.267222 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.37833 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 445

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/3	NBR	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/3	NBR	COM	059	mm (Hg)	780	Instrumental	

## Herculaneum, Mott Street

AQS Site Number 29-099-0027

Mott Street, Herculaneum, MO, 63048

**Latitude:** 38.263394 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.379667 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 468

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Ambient Temperature	68105	SPM	1	<input checked="" type="checkbox"/>	1/1	MID	COM	017	deg C	780	Instrumental	
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input checked="" type="checkbox"/>	1/1	MID	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input checked="" type="checkbox"/>	1/1	MID	COM	059	mm (Hg)	780	Instrumental	
Sulfur Dioxide	42401	SLAMS	1	<input checked="" type="checkbox"/>	H	MID	COM	008	ppb	060	Pulsed Fluorescent	
Sulfur Dioxide Max 5-min Avg	42406	SPM	1	<input checked="" type="checkbox"/>	H	MID	COM	008	ppb	060	Pulsed Fluorescent	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	MID	MET	014	deg	020	Vector Summation	

Wind Speed - Resultant 61103 SPM 1 ☐ H MID MET 012 mph 020 Vector Summation

## Herculaneum, Sherman

AQS Site Number 29-099-0013

460 Sherman St., Herculaneum, MO, 63048

**Latitude:** 38.27171 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.376520 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 462

Pollutant	AQS Code	Monitor-Type	POC	Col	Freq	Scale	Obj	Unit-Code	Unit	Method-Code	Method	Monitor-Status
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/3	NBR	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/3	NBR	COM	059	mm (Hg)	780	Instrumental	

## Liberty

AQS Site Number 29-047-0005

Highway 33 & County Home Rd., Liberty, MO 64068

**Latitude:** 39.303056 **AQCR:** 094 Metropolitan Kansas City

**Longitude:** -94.376389 **MSA:** 3760 Kansas City, MO-KS

**Elevation (ft):** 930

Pollutant	AQS Code	Monitor-Type	POC	Col	Freq	Scale	Obj	Unit-Code	Unit	Method-Code	Method	Monitor-Status
Acceptable PM2.5 AQI/SPEC	88502	SPEC	5	<input type="checkbox"/>	1/3	NBR	RES	105	ug/m^3-LC	810	METONE SASS	
Acceptable PMCoarse - LC	86502	SPM	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	H	URB	MET	017	deg C	040	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	
PM10 - LC	85101	SPM	5	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**

PM2.5 - LC	88101	SLAMS	4	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	**
PM2.5 - LC	88101	SLAMS	3	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	181	PM2.5 VSCC FEM	
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**
PM2.5 Tot Atmospheric	88500	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
PM2.5 Volatile Channel	88503	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
PM2.5 Volatile Channel	88503	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	**
Solar Radiation	63301	SPM	1	<input type="checkbox"/>	H	URB	MET	079	W/m^2	011	Instrumental	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	URB	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	URB	MET	012	mph	020	Vector Summation	

**Mark Twain State Park (PM10 Monitor: Proposed)** **AQS Site Number 29-137-0001**

20057 State Park Office Rd., Stoutville, MO 65283

**Latitude:** 39.46528 **AQCR:** 137 Northern Missouri

**Longitude:** -91.78972 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 714

<b>Pollutant</b>	<b>AQS Code</b>	<b>Monitor-Type</b>	<b>POC</b>	<b>Col</b>	<b>Freq</b>	<b>Scale</b>	<b>Obj</b>	<b>Unit-Code</b>	<b>Unit</b>	<b>Method-Code</b>	<b>Method</b>	<b>Monitor-Status</b>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	127	Lo-Vol R&P 2025 Sequential	
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Ozone	44201	SLAMS	1	<input type="checkbox"/>	H	REG	COM	007	ppm	047	Ultraviolet Photometric	
PM10 - Total STP	81102	SLAMS	1	<input type="checkbox"/>	H	REG	COM	001	ug/m^3	079	R&P SA246B TEOM	NON-R
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	127	Lo-Vol R&P 2025 Sequential	

Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	REG	MET	014	deg	020	Vector Summation
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	REG	MET	012	mph	020	Vector Summation

## New Bloomfield

**AQS Site Number 29-027-0002**

2625 Meadow Lake View, New Bloomfield, MO, 65063

**Latitude:** 38.70608 **AQCR:** 137 Northern Missouri

**Longitude:** -92.09308 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 860

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	

## Oates

**AQS Site Number 29-179-0034**

13155 Highway KK, Boss, MO 65440

**Latitude:** 37.56485 **AQCR:** 138 SE Missouri

**Longitude:** -91.11423 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 1134

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	803	Off-Site Avg Temperature	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	803	Off-Site Avg Pressure	

## Orchard Farm

AQS Site Number 29-183-1004

2165 Highway V, St. Charles, MO 63301

**Latitude:** 38.8994 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.44917 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 441

Pollutant	AQS Code	Monitor- Type	POC	Col	Freq	Scale	Obj	Unit- Code	Unit	Method- Code	Method	Monitor- Status
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	URB	COM	007	ppm	047	Ultraviolet Photometric	

## Park Hills

AQS Site Number 29-187-0006

105 Industrial Dr., Park Hills, MO 63601

**Latitude:** 37.86485 **AQCR:** 138 SE Missouri

**Longitude:** -90.50804 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 743

Pollutant	AQS Code	Monitor- Type	POC	Col	Freq	Scale	Obj	Unit- Code	Unit	Method- Code	Method	Monitor- Status
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	803	Off-Site Avg Temperature	
Lead (TSP) - LC FRM/FEM	14129	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	803	Off-Site Avg Pressure	

## Pevely

AQS Site Number 29-099-0009

500 Dow Industrial Dr., Pevely, MO 63070

**Latitude:** 38.2861 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.38094 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 409

Pollutant	AQS Code	Monitor- Type	POC	Col	Freq	Scale	Obj	Unit- Code	Unit	Method- Code	Method	Monitor- Status
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	780	Instrumental	

Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	780	Instrumental

## Pevely North

**AQS Site Number 29-099-0026**

Tiarre at the Abbey, Station 150N, Christine Drive, Pevely, MO 63070

**Latitude:** 38.296 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.393 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 582

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	780	Instrumental	

## Richards Gebaur-South

**AQS Site Number 29-037-0003**

1802 E. 203rd Street, Belton, MO, 64012

**Latitude:** 38.75976 **AQCR:** 094 Metropolitan Kansas City

**Longitude:** -94.57997 **MSA:** 3760 Kansas City, MO-KS

**Elevation (ft):** 1031

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Acceptable PMCoarse - LC	86502	SPM	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF	**
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	
PM10 - LC	85101	SPM	5	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF	**
PM2.5 - LC	88101	SLAMS	3	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	181	PM2.5 VSCC FEM	

PM2.5 Tot Atmospheric	88500	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
PM2.5 Tot Atmospheric	88500	SPM	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF	**
PM2.5 Volatile Channel	88503	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
PM2.5 Volatile Channel	88503	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF	**
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	URB	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	URB	MET	012	mph	020	Vector Summation	

## Rocky Creek

**AQS Site Number 29-047-0006**

13131 Highway 169 NE., Smithville, MO 64089

**Latitude:** 39.33188 **AQCR:** 094 Metropolitan Kansas City

**Longitude:** -94.5806 **MSA:** 3760 Kansas City, MO-KS

**Elevation (ft):** 993

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	

## Savannah

**AQS Site Number 29-003-0001**

11796 Highway 71, Savannah, MO 64485

**Latitude:** 39.9544 **AQCR:** 137 Northern Missouri

**Longitude:** -94.849 **MSA:** 7000 St. Joseph, MO

**Elevation (ft):** 1120

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
------------------	-----------------	--------------------------	------------	------------	-------------	--------------	------------	-----------------------	-------------	-------------------------	---------------	----------------------------

Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation

### St. Joe State Park

**AQS Site Number 29-187-0007**

2800 Pimville Rd., Park Hills, MO 63601

**Latitude:** 37.81413 **AQCR:** 138 SE Missouri

**Longitude:** -90.50738 **MSA:** 0000 Not in a MSA

**Elevation (ft):** 937

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	803	Off-Site Avg Temperature	
Lead (TSP) - LC FRM/FEM	14129	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	803	Off-Site Avg Pressure	

### St. Joseph Pump Station

**AQS Site Number 29-021-0005**

S. Highway 759, St. Joseph, MO 64501

**Latitude:** 39.741667 **AQCR:** 094 Metropolitan Kansas City

**Longitude:** -94.858333 **MSA:** 7000 St. Joseph, MO

**Elevation (ft):** 845

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Acceptable PMCoarse - LC	86502	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	
Ambient Temperature	68105	SPM	3	<input checked="" type="checkbox"/>	1/3	NBR	COM	017	deg C	127	Lo-Vol R&P 2025 Sequential	
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	

Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	H	NBR	MET	017	deg C	040	Electronic Averaging
PM10 - LC	85101	SPM	5	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF
PM10 - LC	85101	SPM	1	<input checked="" type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	127	Lo-Vol R&P 2025 Sequential
PM10 - Total STP	81102	SLAMS	1	<input checked="" type="checkbox"/>	1/3	NBR	COM	001	ug/m^3	127	Lo-Vol R&P 2025 Sequential
PM2.5 - LC	88101	SLAMS	4	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	182	FMDS-Gravimetric 1405-DF
PM2.5 Tot Atmospheric	88500	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF
PM2.5 Volatile Channel	88503	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF
Sample Baro Pressure	68108	SPM	3	<input checked="" type="checkbox"/>	1/3	NBR	COM	059	mm (Hg)	127	Lo-Vol R&P 2025 Sequential

**Trimble**

**AQS Site Number 29-049-0001**

7536 SW. O Highway, Trimble, MO 64492

**Latitude:** 39.5306 **AQCR:** 137 Northern Missouri

**Longitude:** -94.556 **MSA:** 3760 Kansas City, MO-KS

**Elevation (ft):** 955

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	

724 Troost (Rear), Kansas City, MO 64106

**Latitude:** 39.104722 **AQCR:** 094 Metropolitan Kansas City**Longitude:** -94.570556 **MSA:** 3760 Kansas City, MO-KS**Elevation (ft):** 971

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Acceptable PM2.5 AQI/SPEC	88502	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
Ambient Temperature	68105	SPM	3	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	127	Lo-Vol R&P 2025 Sequential	
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/1	NBR	MET	017	deg C	118	Lo-Vol R&P 2025 Sequential	
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Nitric Oxide (NO)	42601	SPM	1	<input type="checkbox"/>	H	URB	COM	008	ppb	074	Chemiluminesce nce	
Nitrogen Dioxide (NO2)	42602	SLAMS	1	<input type="checkbox"/>	H	URB	COM	008	ppb	074	Chemiluminesce nce	
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	H	NBR	MET	017	deg C	040	Electronic Averaging	
Oxides of Nitrogen (NOx)	42603	SPM	1	<input type="checkbox"/>	H	URB	COM	008	ppb	074	Chemiluminesce nce	
PM10 - LC	85101	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	127	Lo-Vol R&P 2025 Sequential	
PM10 - Total STP	81102	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	001	ug/m^3	127	Lo-Vol R&P 2025 Sequential	
PM2.5 - LC	88101	SLAMS	3	<input checked="" type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	181	PM2.5 VSCC FEM	
PM2.5 Tot Atmospheric	88500	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
PM2.5 Volatile Channel	88503	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
Sample Baro Pressure	68108	SPM	3	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	127	Lo-Vol R&P 2025 Sequential	

Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/1	NBR	COM	059	mm (Hg)	118	Lo-Vol R&P 2025 Sequential
Sulfur Dioxide	42401	SLAMS	1	<input type="checkbox"/>	H	MID	COM	008	ppb	060	Pulsed Fluorescent
Sulfur Dioxide Max 5-min Avg	42406	SLAMS	1	<input type="checkbox"/>	H	MID	COM	008	ppb	060	Pulsed Fluorescent

### *Ursuline North*

**AQS Site Number 29-099-0025**

210 Glennon Heights Rd., Crystal City, MO 63019

**Latitude:** 38.243 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.37372 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 578

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	780	Instrumental	
Lead (TSP) - LC FRM/FEM	14129	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	105	ug/m^3-LC	192	Inductive Coupled Plasma Spectrometry	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	780	Instrumental	

### *Watkins Mill State Park*

**AQS Site Number 29-047-0003**

Watkins Mill Road, Lawson, MO 64062

**Latitude:** 39.407419 **AQCR:** 094 Metropolitan Kansas City

**Longitude:** -94.265142 **MSA:** 3760 Kansas City, MO-KS

**Elevation (ft):** 1009

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	URB	COM	007	ppm	047	Ultraviolet Photometric	

## West Alton

AQS Site Number 29-183-1002

General Elecric Store, Highway 94, West Alton, MO 63386

**Latitude:** 38.8725 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.226389 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 425

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	H	NBR	MET	017	deg C	040	Electronic Averaging	
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	URB	COM	007	ppm	047	Ultraviolet Photometric	
Solar Radiation	63301	SPM	1	<input type="checkbox"/>	H	NBR	MET	079	W/m^2	011	Instrumental	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	

## Springfield

### Fellows Lake

**AQS Site Number 29-077-0042**

4208 E. Farm Rd. 66, Springfield, MO 65648

**Latitude:** 37.319444 **AQCR:** 139 SW Missouri

**Longitude:** -93.204444 **MSA:** 7920 Springfield, MO

**Elevation (ft):** 1346

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ozone	44201	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	URB	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	URB	MET	012	mph	020	Vector Summation	

### Hillcrest High School

**AQS Site Number 29-077-0036**

3319 N. Grant, Springfield, MO 65803

**Latitude:** 37.256069 **AQCR:** 139 SW Missouri

**Longitude:** -93.299692 **MSA:** 7920 Springfield, MO

**Elevation (ft):** 1321

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Ozone	44201	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric	

### Missouri State University

**AQS Site Number 29-077-0032**

710 S. Holland St. at Madison St., Springfield, MO 65806

**Latitude:** 37.199473 **AQCR:** 139 SW Missouri

**Longitude:** -93.284681 **MSA:** 7920 Springfield, MO

**Elevation (ft):** 1316

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Acceptable PMCoarse - LC	86502	SPM	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF	

Ambient Temperature	68105	SPM	3	<input type="checkbox"/>	1/6	NBR	COM	017	deg C	127	Lo-Vol R&P 2025 Sequential
Ambient Temperature	68105	SPM	1	<input checked="" type="checkbox"/>	1/3	NBR	COM	017	deg C	118	Lo-Vol R&P 2025 Sequential
PM10 - LC	85101	SPM	5	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF
PM10 - Total STP	81102	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	001	ug/m^3	127	Lo-Vol R&P 2025 Sequential
PM2.5 - LC	88101	SLAMS	4	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	182	FMDS- Gravimetric 1405- DF
PM2.5 - LC	88101	SLAMS	1	<input checked="" type="checkbox"/>	1/3	NBR	COM	105	ug/m^3-LC	118	Lo-Vol R&P 2025 Sequential
PM2.5 Tot Atmospheric	88500	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF
PM2.5 Volatile Channel	88503	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS- Gravimetric 1405- DF
Sample Baro Pressure	68108	SPM	1	<input checked="" type="checkbox"/>	1/3	NBR	COM	059	mm (Hg)	118	Lo-Vol R&P 2025 Sequential
Sample Baro Pressure	68108	SPM	3	<input type="checkbox"/>	1/6	NBR	COM	059	mm (Hg)	127	Lo-Vol R&P 2025 Sequential

## South Charleston

**AQS Site Number 29-077-0026**

5012 S. Charleston, Springfield, MO 65804

**Latitude:** 37.122561 **AQCR:** 139 SW Missouri

**Longitude:** -93.263161 **MSA:** 7920 Springfield, MO

**Elevation (ft):** 1234

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Sulfur Dioxide	42401	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	008	ppb	060	Pulsed Fluorescent	
Sulfur Dioxide Max 5-min Avg	42406	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	008	ppb	060	Pulsed Fluorescent	

# St. Louis City

## Branch Street

**AQS Site Number 29-510-0093**

100 Branch St., St. Louis, MO 63102

**Latitude:** 38.653716 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.186816 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 422

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor- Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit- Code</i>	<i>Unit</i>	<i>Method- Code</i>	<i>Method</i>	<i>Monitor- Status</i>
Acceptable PMCoarse - LC	86502	SPM	1	<input type="checkbox"/>	H	MID	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/3	NBR	COM	017	deg C	118	Lo-Vol R&P 2025 Sequential	
Elapsed Sample Time	68109	SPM	1	<input type="checkbox"/>	1/1	N/A	COM	106	minutes	118	Lo-Vol R&P 2025 Sequential	
PM10 - LC	85101	SPM	5	<input type="checkbox"/>	H	MID	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	
PM10 - Total STP	81102	SLAMS	1	<input type="checkbox"/>	H	MID	COM	001	ug/m^3	079	R&P SA246B TEOM	
PM2.5 - LC	88101	SLAMS	1	<input type="checkbox"/>	1/3	MID	COM	105	ug/m^3-LC	118	Lo-Vol R&P 2025 Sequential	
PM2.5 - LC	88101	SLAMS	4	<input type="checkbox"/>	H	MID	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF	
PM2.5 Tot Atmospheric	88500	NON-R	1	<input type="checkbox"/>	H	MID	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	
PM2.5 Volatile Channel	88503	NON-R	1	<input type="checkbox"/>	H	MID	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF	
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/3	NBR	COM	059	mm (Hg)	118	Lo-Vol R&P 2025 Sequential	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	

## Hall Street

AQS Site Number 29-510-0088

6204 Hall St., St. Louis, MO 63147

**Latitude:** 38.69075 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.209306 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 417

Pollutant	AQS Code	Monitor- Type	POC	Col	Freq	Scale	Obj	Unit- Code	Unit	Method- Code	Method	Monitor- Status
PM10 - Total STP	81102	SLAMS	1	<input type="checkbox"/>	H	MID	COM	001	ug/m^3	079	R&P SA246B TEOM	

## Margaretta (PM10 TEOM to replace PM10 Hi-vol)

AQS Site Number 29-510-0086

4520 Margaretta, St. Louis, MO 63105

**Latitude:** 38.673172 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.239086 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 514

Pollutant	AQS Code	Monitor- Type	POC	Col	Freq	Scale	Obj	Unit- Code	Unit	Method- Code	Method	Monitor- Status
Nitrogen Dioxide (NO2)	42602	SLAMS	1	<input type="checkbox"/>	H	URB	COM	008	ppb	074	Chemiluminesce nce	
PM10 - Total STP	81102	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	001	ug/m^3	079	R&P SA246B TEOM	
PM10 - Total STP	81102	SLAMS	1	<input type="checkbox"/>	1/6	NBR	COM	001	ug/m^3	064	Hi-vol SA/GMW- 321-B	
Sulfur Dioxide	42401	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	008	ppb	060	Pulsed Fluorescent	
Sulfur Dioxide Max 5-min Avg	42406	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	008	ppb	060	Pulsed Fluorescent	

## South Broadway

AQS Site Number 29-510-0007

8227 South Broadway, St. Louis, MO 63111

**Latitude:** 38.5425 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.263611 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 452

Pollutant	AQS Code	Monitor- Type	POC	Col	Freq	Scale	Obj	Unit- Code	Unit	Method- Code	Method	Monitor- Status
-----------	----------	------------------	-----	-----	------	-------	-----	---------------	------	-----------------	--------	--------------------

Acceptable PMCoarse - LC	86502	SLAMS	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF
Ambient Temperature	68105	SPM	1	<input type="checkbox"/>	1/1	NBR	COM	017	deg C	118	Lo-Vol R&P 2025 Sequential
Elapsed Sample Time	68109	SPM	1	<input type="checkbox"/>	1/1	N/A	COM	106	minutes	118	Lo-Vol R&P 2025 Sequential
PM10 - LC	85101	SPM	5	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF
PM2.5 - LC	88101	SLAMS	4	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	182	FDMS-Gravimetric 1405-DF
PM2.5 - LC	88101	SLAMS	1	<input type="checkbox"/>	1/1	NBR	COM	105	ug/m^3-LC	118	Lo-Vol R&P 2025 Sequential
PM2.5 Tot Atmospheric	88500	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF
PM2.5 Volatile Channel	88503	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	790	FDMS-Gravimetric 1405-DF
Sample Baro Pressure	68108	SPM	1	<input type="checkbox"/>	1/1	NBR	COM	059	mm (Hg)	118	Lo-Vol R&P 2025 Sequential

## St. Louis County

### Ladue

**AQS Site Number 29-189-3001**

73 Hunter Ave., Ladue, MO 63124

**Latitude:** 38.65021 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.35036 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 528

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Acceptable PM2.5 AQI/SPEC	88502	NON-R	1	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	H	NBR	MET	015	deg F	040	Electronic Averaging	
PM2.5 - LC	88101	SLAMS	3	<input type="checkbox"/>	H	NBR	COM	105	ug/m^3-LC	181	PM2.5 VSCC FEM	
PM2.5 Tot Atmospheric	88500	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
PM2.5 Volatile Channel	88503	NON-R	3	<input type="checkbox"/>	H	NBR	AQI	105	ug/m^3-LC	761	PM2.5 VSCC FDMS	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	

### Maryland Heights

**AQS Site Number 29-189-0014**

13044 Marine Ave., Maryland Heights, MO 63146

**Latitude:** 38.7109 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.4759 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 633

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	

Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	H	NBR	MET	015	deg F	040	Electronic Averaging
Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	087	Ultraviolet Absorption
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation

## Oakville

**AQS Site Number 29-189-0015**

6115 Frontenac Pointe Ct., Oakville, MO 63129

**Latitude:** 38.45671 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.327477 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 477

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
PM10 - Total STP	81102	SLAMS	1	<input type="checkbox"/>	H	MID	COM	001	ug/m^3	079	R&P SA246B TEOM	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	

## Pacific

**AQS Site Number 29-189-0005**

18701 Old Highway 66, Pacific, MO 63039

**Latitude:** 38.4902 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.7052 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 524

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	H	NBR	MET	017	deg C	040	Electronic Averaging	

Ozone	44201	SLAMS	1	<input checked="" type="checkbox"/>	H	NBR	COM	007	ppm	047	Ultraviolet Photometric
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation

## Sunset Hills

**AQS Site Number 29-189-0004**

4580 S. Lindbergh & Gravius, Sunset Hills, MO 63126

**Latitude:** 38.53278 **AQCR:** 070 Metropolitan St. Louis

**Longitude:** -90.38243 **MSA:** 7040 St. Louis, MO-IL

**Elevation (ft):** 600

<i>Pollutant</i>	<i>AQS Code</i>	<i>Monitor-Type</i>	<i>POC</i>	<i>Col</i>	<i>Freq</i>	<i>Scale</i>	<i>Obj</i>	<i>Unit-Code</i>	<i>Unit</i>	<i>Method-Code</i>	<i>Method</i>	<i>Monitor-Status</i>
Indoor Temperature	62107	SPM	1	<input type="checkbox"/>	H	N/A	MET	017	deg C	013	Electronic Averaging	
Outdoor Temperature	62101	SPM	1	<input type="checkbox"/>	H	NBR	MET	017	deg C	040	Electronic Averaging	
Wind Direction - Resultant	61104	SPM	1	<input type="checkbox"/>	H	NBR	MET	014	deg	020	Vector Summation	
Wind Speed - Resultant	61103	SPM	1	<input type="checkbox"/>	H	NBR	MET	012	mph	020	Vector Summation	



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

## DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

## MEMORANDUM

To: Calvin Ku, Stephen Hall *CK s/p*

Through: Wendy Vit, Tiffany Drake *WV TD*

From: Assem Abdul, Mark Leath, Bern Johnson *ML BAJ s/4*

Subject: Small Lead Source Modeling Results

In response to the lower National Ambient Air Quality Standard for Lead, the United States Environmental Protection Agency requires States to monitor lead in ambient air near sources that emit greater than one-half of one ton of lead. A waiver for this monitoring requirement is available if dispersion modeling shows that ambient air concentrations will be less than one-half of the new standard, or  $0.075 \mu\text{g}/\text{m}^3$ . Modeling results indicate that ambient air concentrations near sources with low lead emissions will not exceed one-half of the new standard.

The State Implementation Plan unit of the Air Program's Planning Section was asked to perform dispersion modeling for five power plants: Labadie, Rush Island, Meramec, New Madrid, and Iatan. The results are presented in Table 1. A modeling protocol was developed and is attached to this memorandum.

Table 1 – Highest Rolling Three-Month Average

Site	Labadie	Rush Island	Meramec	New Madrid	Iatan
Modeled Concentration ( $\mu\text{g}/\text{m}^3$ )	0.00	0.00	0.00	0.00	0.00

Calvin Ku, Stephen Hall  
Page Two

The model chosen for this assignment was AERMOD, the EPA's preferred non-reactive dispersion model. Terrain heights were calculated by the AERMAP terrain pre-processor. Post-processing was done by LEADPOST, whose output is limited to two significant figures (i.e. hundredths of  $\mu\text{g}/\text{m}^3$ ).

If you have any questions, please contact Mr. Bern Johnson for additional information.

BJ:kb

Attachment

# Modeling Protocol for Selection of Monitoring Sites Near Low-Emitting Lead Sources

## **1. Introduction**

The United States Environmental Protection Agency (EPA) recently modified the National Ambient Air Quality Standard (NAAQS) for Lead. The level of the standard was reduced from  $1.5 \mu\text{g}/\text{m}^3$  to  $0.15 \mu\text{g}/\text{m}^3$ . One result of this lower standard is that sources other than lead mining or refining need to be reviewed for possible violations of the NAAQS. EPA has recommended that sources emitting over one-half tons of lead per year be reviewed.

### **a. Objectives**

The goal of this project is twofold: to identify sources that may violate the Lead NAAQS and to locate optimum locations for ambient air monitors to verify the model projections.

### **b. Products**

- i. A table of maximum modeled concentrations near each source, indicating which sources violate the NAAQS, and
- ii. maps of the vicinity of each source which may violate the NAAQS (if needed).

### **c. Deadline**

The due date is Friday, May 6, 2011.

## **2. Model Selection**

The AERMOD modeling system will be used for this project. Pre-processing will be done with AERMAP, using digital elevation maps. AERMOD itself will be used to determine projected ambient air concentrations. LEADPOST post-processing will be used to generate three-month rolling averages.

### 3. Model Options

This exercise will be conducted using the DFAULT control option.

#### a. Averaging Time

The form of the Lead NAAQS is a rolling three-month average. The AVERTIME control option will be set to MONTH, followed by post processing to generate three-month rolling averages. The MONTH option is required for post-processing by LEADPOST.

#### b. Sources

A list of sources with lead emissions of one-quarter ton or greater has been provided by the Emission Inventory Unit. From that list, the following electric generating units (EGU) were selected for modeling: Labadie, Rush Island, Meramec, Iatan, and New Madrid.

##### i. Emission Rates

Emission rates for the above named sources will be determined by converting actual annual emissions from 2008 from tons per year into grams per second. Since all five facilities are EGUs, all will be assumed to have run 8,784 hours in 2008-a leap year. This total emission rate will be divided by the number of stacks at the facility to divide emissions evenly between stacks. Stack parameters will be determined from data in MOEIS.

##### ii. Pollutant Parameters

Particle diameter, density, and mass fraction data for lead from these sources has not be determined and will not be used.

##### iii. Building Parameters

Building parameters are not available for all five facilities; therefore they will not be used. This omission should not impact the results due the height of the stacks.

#### c. Receptor Grid

A conventional cartesian receptor grid will be used around each source. It will consist of 50-meter spacing to 1 kilometer and 250-meter spacing to 10 kilometers. Individual receptors at the property line will not be used for this project.

#### **4. Meteorology**

To ensure a wide variety of weather conditions are represented, five years of available meteorological data from the nearest National Weather Service (NWS) station will be used.

- i. Labadie, Rush Island, and Meramec – 2001-2005 from St. Louis NWS station.
- ii. New Madrid – 2003-2007 from Cape Girardeau NWS
- iii. Iatan – 2002-2006 from St. Joseph NWS

#### **5. Output Options**

The POSTFILE output option will be used for both creating the table and maps. This is necessary for use in the LEADPOST post-processor.

#### **6. Post-Processing**

AERMOD results will be processed by LEADPOST to obtain three-month rolling averages. The LEADPOST results will then be analyzed and condensed into a table for inclusion in the final report and for use by ArcGIS 9 graphics software to create maps for the report.

#### **7. Time to Completion**

This project will require one week to prepare inputs, one week to run models and post-processors, and one week for analysis and document writing.

\*note – this includes time needed to train Mark and Assem.

## Description of AERMOD inputs for Halfton modeling

### Emission Rate Calculation

Facility	MOEIS emissions (tpy)*	Number of stacks	Emissions per stack (tpy)	Emission rate per stack (gm/sec)
Labadie	2.0925	4	0.5231	0.015048548
Rush Island	1.067	2	0.5335	0.015347003
Meramec	0.7441	1	0.7441	0.021405256
New Madrid	0.9270	1	0.9270	0.026666675
Iatan	0.5278	1	0.5278	0.015183032

\* actual emissions for 2008

### Stack Parameters

Facility	Emission Rate (gm/s)	Stack Height (m)	Gas Exit Temp (K)	Gas Exit Velocity (m/s)	Stack Interior Dia. (m)
Labadie 1	0.015048548	255.93	450.93	32.3088	8.8392
Labadie 2	0.015048548	255.93	455.93	35.3568	8.8392
Labadie 3	0.015048548	255.93	445.93	36.2712	8.8392
Labadie 4	0.015048548	255.93	449.26	36.5760	8.8392
Rush Island 1	0.015347003	213.36	405.37	24.9936	8.8392
Rush Island 2	0.015347003	213.36	405.37	24.9936	8.8392
Meramec	0.021405256	76.2	436.48	27.3192	3.3528
New Madrid	0.026666675	243.84	450.59	21.336	6.096
Iatan	0.015183032	184.404	329.26	18.4	8.69